FEMA

Consensus-Based Codes, Specifications and Standards for Public Assistance

FEMA Policy FP-104-009-11, Version 3

BACKGROUND

Section 323 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) authorizes FEMA to require, as a condition of grant funding, that the repair or construction of private and public facilities be done in accordance with "applicable standards of safety, decency, and sanitation in conformity with applicable codes, specifications and standards." Section 406 of the Stafford Act authorizes FEMA to provide contributions to state, local, tribal, territorial, and certain private nonprofit organizations for the repair, restoration, reconstruction, or replacement of a public facility damaged or destroyed by a major disaster and associated expenses incurred. As amended by Section 1235(b) of the Disaster Recovery Reform Act of 2018 (DRRA), Section 406(e) requires FEMA to fund repair, restoration, reconstruction, or replacement in conformity with "the latest published editions of relevant consensus-based codes, specifications, and standards that incorporate the latest hazard-resistant design and establish minimum acceptable criteria for the design, construction, and maintenance of residential structures and facilities that may be eligible for assistance under this Act for the purposes of protecting the health, safety, and general welfare of a facility's users against disasters."

PURPOSE

The purpose of FEMA Policy FP-104-009-11, *Consensus-Based Codes, Specifications and Standards for Public Assistance* (Policy) is to define the framework and requirements for consistent and appropriate implementation of consensus-based design, construction and maintenance codes, specifications and standards (*subsequently referred to as "consensus-based codes, specifications and standards" in this Policy)* for Public Assistance (PA) to promote resiliency and achieve risk reduction under the authority of the Stafford Act§§ 323 and 406(e) (42 U.S.C.§§ 5165a and 5172) and 44 Code of Federal Regulations (CFR) § 206, subpart M. These codes, specifications and standards only apply to repair and replacement of disaster damaged elements and facilities. The requirements of this policy are in addition to other legally-required standards under the Americans with Disabilities Act Standards for Accessible Design, Architectural Barriers Act, and the Uniform Federal Accessibility Standards, as applicable and nothing in this Policy makes eligible costs associated with ongoing operations and maintenance.

PRINCIPLES

Application of the latest nationwide codes, specifications and standards that incorporate hazard-resistance for PA funded projects will:

A. Increase the Resiliency of Communities after a Disaster – Facilities restored to a hazard-resistant code, specification, or standard will be strengthened and experience fewer interruptions and less damage in the future. [1]

B. Protect Lives and Property – Use of hazard-resistant codes, specifications, or standards will further FEMA's core mission to protect lives and property by increasing the safety and resilience of facilities that receive PA funding.

C. Support the Efficient Use of Federal Dollars – The use of hazard-resistant criteria for federally-funded projects will reduce future vulnerability of disaster-damaged facilities thereby reducing the need for future federal disaster recovery funding or other assistance.

D. Equitable Outcome - Ensure the use of hazard-resistant criteria will lead to equitable outcomes for underserved communities. Promote a continuous and methodical commitment to equitable, unbiased, and impartial treatment for every community.

REQUIREMENTS

This section summarizes the eligibility requirements associated with this Policy.

A. APPLICABILITY

Outcome: To establish the applicability and parameters for the implementation of this Policy.

1. Applicants under disasters declared on or after 60 days from the issuance of this Policy must apply the relevant codes, specifications, and standards identified in Appendix A - *Consensus-Based Codes, Specifications and Standards* of this Policy to all permanent work PA projects, when applicable.

2. This Policy applies to all permanent work projects with facility types identified in Appendix A of this Policy (i.e., buildings, electric power, roads, bridges, potable water, and wastewater facilities). (Unless waived per section B.4.)

3. This policy is intended to address situations in which the local jurisdiction either has not formally adopted an eligible code or standard[2] applicable to the FEMA-funded repair/restoration work or has adopted an outdated code. FEMA will continue to fund costs necessary for communities to address their

[1] *In identifying standards for incorporation into this policy, FEMA considered resilience to mean: Able to prepare for anticipated hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Protection and Resilience.*

[2] *To be eligible, locally adopted codes must meet the five criteria outlined in 44 CFR Part 206.226(d) and the PAPPG.*

adopted codes when:

a. The eligible local code applies to work that is not covered by a code identified in Appendix A of this Policy, or
b. The eligible local code applies to work that is covered by a code identified in Appendix A and the applicant can demonstrate that the local code has higher hazard resilience than the code in Appendix A (e.g., the applicant has adopted and amended the latest published edition of the International Building Code with a higher wind speed threshold than is required).

B. IMPLEMENTATION

Outcome: Applicants will understand the key implementation guidelines of this Policy.

1. When applicable for the type of eligible repair being undertaken, FEMA will require that applicants incorporate the codes, specifications, and standards identified in Appendix A of this Policy in the planning, design, and execution of PA-eligible repair, replacement, or new construction projects.[3]

2. The applicant will incorporate the most recent edition of the codes, specifications, or standards listed in Appendix A in effect as of the date of the disaster declaration.

3. If the applicant has a code or standard that meets FEMA's regulatory criteria[4] as being equivalent to or more stringent than the corresponding codes, specifications, and standards identified in Appendix A, FEMA will require the applicant's registered engineer, architect or design professional to justify that the hazard-resistant design criteria in the locally adopted code or standard is equivalent to or more stringent than those approved under this Policy for eligibility determination purposes.

4. FEMA may deviate from this Policy in circumstances where utilization of the codes, specifications, and standards in Appendix A are technically infeasible, would create an extraordinary burden on the applicant, or would otherwise be inappropriate for the facility, such as adversely affecting a facility that has been listed or is eligible to be listed on the National Register of Historic Places. FEMA will evaluate these exemptions on a case-by-case basis.

[3] *This includes improved and alternate projects. Per 44 CFR § 206.203(d), funding for improved and alternate projects* is *capped at the cost to restore the facility to its pre-disaster design and function in accordance with codes and standards, including the required codes and standards referenced in this section, that would otherwise be applicable to the facility if rebuilt as it existed.*

[4] *44 CFR § 206.226(f).*

a. For example, some codes or standards may not be appropriate for all climates or geographies (e.g., facilities built on permafrost), the code or standard may adversely affect the cultural or historical significance of a facility, or the work was completed prior to the disaster declaration.

5. When certain PAPPG requirements are met, FEMA approves PA funding as part of a project for technical assistance support, which may also include architectural and engineering design (A&E), at the applicable cost-share of the project. The funding available under this Policy is limited to the scope required to design the eligible work.[5]

6. Some codes and standards listed in Appendix A have references to other codes embedded within them. These include codes, references, information, or other types of resources.
   a. Some of these have the same authority as the ones listed in Appendix A.
   b. Others do not have the same authority as Appendix A codes and may consist of clarifications or extra information.
   c. If the Applicant proposes to use one of these codes, they must document that the selected code has the same authority[6] as the Appendix A codes (and is not just information, a reference, or other resource) and that it is the most cost-effective code available.

7. If the Applicant believes that the codes mandate a requirement that the facility increase capacity (e.g., footprint) of their facility, they will need to justify that requirement by listing all relevant codes and standards and their impacts on the facility.
   a. They must provide evidence and certify that the least expensive way to accomplish the mandated tasks include adding extra capacity to the facility for eligibility determination purposes.

8. If more than one code listed in Appendix A is applicable to the eligible work, the applicant may use either code. If there are more than one Appendix A code books for similar situations such that the applicant chooses a specific code out of a specific book to use, then they must follow that same code book to the maximum extent possible.

[5] *Eligibility criteria found in FEMA's Public Assistance Program and Policy Guide, FP 104-009-2/June 1, 2020, Chapter 8, Permanent Work Eligibility: Codes and Standards (P186); or the most recent update to these criteria in the PAPPG.*

[6] *Each code in Appendix A will include this information.*

C. IDENTIFICATION REQUIREMENTS

Outcome: To describe how applicants identify the applicable codes, specifications, and standards.

1. This Policy is limited to the following facility types: buildings, electric power, roads, bridges, potable water, and wastewater.

2. The applicant will use the codes, specifications and standards outlined in Appendix A as the minimum design criteria for eligible projects. Only codes, specifications, and standards that are listed in Appendix A are eligible under this Policy.

3. The applicant is responsible for identifying and applying the applicable codes, specifications, and standards in Appendix A to be used in each PA project.

4. It is important to note that FEMA can fund costs associated with work necessary to meet an applicant's locally adopted code so long as those comply with FEMA's regulatory criteria under 44 CFR Part 206.226(d) as implemented in the PAPPG.

5. The applicant must use the following criteria when implementing the codes, specifications, and standards identified in Appendix A:
   a. The Appendix A codes, specifications, and standards apply to the damaged facility, element, or component, as appropriate, based on the work required to restore the facility to pre-disaster capacity and function. The applicant must provide sufficient documentation so that FEMA can verify the applicability and appropriateness of the codes, specifications, and standards based solely on the documentation provided.
   b. If the applicant elects to rebuild to an alternate or improved project that alters the pre-disaster function or capacity of the facility, the applicant must incorporate any applicable codes, specifications identified in Appendix A and standards to the new capacity or function of the facility.
   c. In the case where the codes, specifications and standards identified in Appendix A are being applied and require an upgrade to an entire structural facility, including undamaged elements/components, the upgrade is only eligible for PA funding if there is a direct relationship between the upgrade work and eligible damage.

6. FEMA will update Appendix A of this Policy periodically to incorporate additional codes, specifications, and standards. FEMA will only consider design and construction codes, specifications and standards that incorporate hazard-resistant design.

7. When the code, specification or standard allows for discretion or for variances in the facility design to be appropriate for the facility's location, these adjustments need to be identified, documented, and submitted to FEMA for approval.

D. VERIFICATION REQUIREMENTS

Outcome: Compliance with the requirements must be established by the applicant and will be validated by FEMA.

1. Upon completion of the project, the applicant must provide proof of compliance with the applicable codes, specifications, and standards listed in Appendix A.

2. Acceptable forms of proof include but are not limited to written certification by a registered engineer, architect, or design professional, that the project was designed and constructed in compliance with the applicable codes, specifications and standards identified.

3. Failure to include these codes, specifications and standards or their equivalent in the planning, design, and construction of eligible PA projects, when required or requested, will result in the denial or deobligation of FEMA project funding, subject to Section B.4.

E. ADDITIONAL ELIGIBLE WORK AND COSTS

Outcome: Identify additional work and costs associated with implementing codes, specifications and standards that are eligible under the PA Program.

1. Eligible work and costs include engineering evaluation and analysis of the damaged elements/components of a facility that require codes, specifications, and standards under this Policy along with PA eligible work to comply with law or regulation.

2. Funding for capped projects (improved, alternate, and alternative procedures) will be based on the estimated amount to restore the facility to its pre-disaster capacity and function including any eligible work such as work required by the codes, specifications, and standards in Appendix A.

3. The scope of work will be based on pre-disaster capacity unless the adopted code or standard requires an increase to that capacity.

F. OTHER CONSIDERATIONS

Outcome: Identify additional considerations that should be made in order to effectively implement this Policy.

1. To support timely replacement determinations in support of rapid recovery and streamline the process for the repair versus replacement calculation,[7] applicants have the option to either use the codes, specifications, and standards outlined in Appendix A of this Policy or the applicable codes and standards in effect in their locality in the repair versus replacement calculations. Please note that this option only applies for the purposes of completing the repair versus replacement calculation. PA eligibility and funding will still be determined in accordance with the requirements of this Policy and the PAPPG.

2. When a code, specification or standard offers discretion in design, FEMA will fund the least expensive alternative unless FEMA determines, after demonstration by the applicant's registered engineer, architect, or design professional that another alternative provides greater hazard risk reduction to the facility. In making a determination, FEMA will consider the additional risk reduction, the additional cost, technical feasibility, and whether the alternative is better achieved through other programmatic options, such as mitigation funding.

3. For work completed, applicants will have to demonstrate compliance with all applicable codes, specifications, and standards as well as local, state, tribal, territorial, and federal environmental and historic preservation laws, regulations, and executive orders. Additionally, the applicant will need to show compliance with all procurement requirements as laid out in 2 CFR § 200.

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William C. Hagmaier
Assistant Administrator
Recovery Directorate

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Date

[7] *44 CFR § 206.226(f).*

ADDITIONAL INFORMATION

REVIEW CYCLE

FEMA Policy 104-009-11, Consensus-Based Codes, Specifications, and Standards for Public Assistance, will be reviewed, reissued, revised, and/or rescinded within four years of the issue date.

AUTHORITIES and REFERENCES

Authorities

Sections 323 and 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5165a & 5121, et seq., as amended.

DEFINITIONS

Consensus-based codes, specifications, and standards: National or international voluntary codes, specifications and standards that incorporate the latest hazard-resistant designs.

Hazard-Resistant: Designs which take into account the probability of occurrence of hazards, within a reasonable recurrence interval, to decrease vulnerabilities.

MONITORING AND EVALUATION

This is a Policy and will be followed by additional implementation guidance. In conjunction with publishing the Policy, FEMA is requesting comments from the public to inform future Policy development. FEMA is particularly interested in identifying additional consensus-based codes, specifications and standards that incorporate hazard-resistant criteria. FEMA will consider adding consensus-based codes, specifications and standards to Appendix A based on the information submitted.

To help ensure continuous improvement in the process of implementing this Policy and subsequent updates, FEMA may request performance information and documentation from applicants. FEMA will evaluate this performance information and the implementation of this policy in terms of its effectiveness in increasing the resilience of communities after a disaster, protecting lives and property. FEMA will periodically perform an in-depth review of this Policy.

Appendix A: Consensus-Based Codes, Specifications and Standards

The latest published edition of the codes, specifications and standards published by the following organizations at the time of the disaster declaration will be incorporated into the design and construction of applicable facilities (currently limited to buildings, electric power, roads, bridges, potable water supply and wastewater) as described in this Policy. These codes, specifications and standards only apply to repair and replacement of disaster damaged elements and facilities. Nothing in this Policy makes eligible the cost associated with ongoing operations and maintenance.

Eligible building projects involving substantial improvement or new construction in flood hazard areas must meet, at a minimum, the floodproofing or elevation requirements as described in 44 CFR § 9.11(d), or the International Code Council's International Building Code (IBC), International Existing Building Code (IEBC), International Energy Conservation Code (IECC), or International Residential Code (IRC), whichever is higher.

When triggered by the codes, specifications and standards identified by FEMA in this Policy, applicants will incorporate the latest applicable criteria including, but not limited to the following:

- In areas where tornado shelter design wind speeds are 250 mph or greater, the applicant must incorporate a storm shelter or safe room (designed to International Code Council (ICC) 500 standards) for elementary and secondary schools with an occupant load of 50 or more, Emergency Operations Centers (EOCs), 911 call stations, fire stations, rescue stations, ambulance stations, and police stations.

- Concerning requirements for wind, seismic, flood, temperature, ice and snow, and wildfire the applicant must incorporate applicable design and construction standards contained in the International Building Code (IBC), International Existing Building Code (IEBC), International Residential Code (IRC) and their referenced standards [e.g., American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI) 7; 24 and 41], and International Wildland-Urban Interface Code (IWUIC).

Facility Type	Standard Setting Organization and Consensus-Based Codes, Specifications and Standards
Buildings	• **American Concrete Institute (ACI):** ACI 318-19, "Building Code Requirements for Reinforced Concrete; ACI 301 Specifications for Concrete Construction • **American Institute of Steel Construction (AISC):** ANSI/AISC 303, Code of Standard Practice for Steel Buildings and Bridges; ANSI/AISC 360, Specification for Structural Steel Buildings; ANSI/AISC 341, Seismic Provisions for Structural Steel Buildings • **American Iron and Steel Institute (AISI):** AISI S100, North American Specification for the Design of Cold-formed Steel Structural Members • **American Society of Civil Engineers (ASCE):** ASCE 24, Flood Resistant Design and Construction; ASCE 41, Seismic Evaluation and Retrofit of Existing Buildings; ASCE 8, Standard Specification for the Design of Cold-formed Stainless-Steel Structural Members; ASCE 49, Wind Tunnel Testing for Buildings and Other Structures • **American Society Mechanical Engineers (ASME):** ASME/A17.1/CSA B44-16, Safety Code for Elevators and Escalators • **American Society of Testing and Materials (ASTM):** ASTM E1886, Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials; ASTM E1996, Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes • **American Wood Council (AWC):** NDS, National Design Specification (NOS) for Wood Construction-with NOS Supplement • **American Welding Society (AWS):** AWS D1.4/D1.4M Structural Welding Code-Reinforcing Steel • **Facilities Guideline Institute (FGI):** (FGI), Guidelines for Design and Construction of Hospitals/Outpatient • **International Association of Plumbing and Mechanical Officials (IAPMO):** IAPMO UMC Uniform Plumbing Code, UPC Uniform Mechanical Code • **International Code Council (ICC):** International Building Code (IBC); International Existing Building Code (IEBC); International Residential Code (IRC); International Energy Conservation Code (IECC); International Wildland-Urban Interface Code (IWUIC); International Plumbing Code (IPC); International Mechanical Code (IMC); International Fire Code (IFC); ICC 500, ICC/NSSA Standard on the Design and Construction of Storm Shelters; ICC 600, Standard for Residential Construction in High-wind Regions

Facility Type	Standard Setting Organization and Consensus-Based Codes, Specifications and Standards
	• **National Association of Architectural Metal Manufacturers (NAAMM):** NAAMM FP 1001, Guide Specifications for Design of Metal Flag Poles • **National Fire Protection Association (NFPA):** NFPA 70, National Electrical Code (NEC); NFPA 1142, Standard on Water Supplies for Suburban and Rural Firefighting; NFPA 1144, Standard for Reducing Structure Ignition Hazards from Wildland Fire • **Steel Joist Institute (SJI):** SJI 100 Standard Specification Load Tables and Weight Tables for Steel Joists and Joist Girders K-Series, Series, DHL-Series, Joist Girders; SJI 200, Standard Specification for Composite Steel Joists, CJ-Series • **The Aluminum Association (TAA):** ADM1, Aluminum Design Manual, Part 1 - A Specification for Aluminum Structures, • **The Masonry Society (TMS):** TMS 402, Building Code for Masonry Structures; TMS 602, Specification for Masonry Structures • **Timber Piling Council (TPC):** TPC, Timber Pile Construction
Roads and Bridges	• **American Association of State Highway and Transportation Officials (AASHTO):** A Policy on Geometric Design of Highways and Streets; Standard Specifications for Highway Bridges; LRFD Bridge Construction Specifications; LRFD Bridge Design Specifications; LRFD Movable Highway Bridge Design Specifications; AASHTO/AWS D1.5M/D1.5 Bridge Welding Code,; LRFD Guide Specifications for Accelerated Bridge Construction; Guide Specifications for LFRD Seismic Bridge Design; Guide Specifications for Design of Bonded FRP Systems for Repair or Strengthening of Concrete Bridge Elements; Guide Specifications for Design and Construction of Segmental Concrete Bridges, Guide Specifications for Wind Loads on Bridges During Construction; Guidelines for Geometric Design of Low-Volume Local Roads; M288 Standard Specifications for Geosynthetic Specifications for Highway Applications; Manual on Uniform Traffic Control (MUTCD); • **American Concrete Institute (ACI):** ACI-548.10Specification for Type MMS (Methyl Methacrylate Slurry) Polymer Overlays for Bridge and Parking Garage Decks; ACI-548.8 - Specification for Type EM (Epoxy Multi-Layer) Polymer Overlay for Bridge and Parking Garage Decks; ACI-548.9 - Specification for Type ES (Epoxy Slurry) Polymer Overlays for Bridge and Parking Garage Decks • FAA AC150/5300 Airport Design
Electric Power	• **American Society of Civil Engineers (ASCE):** ASCE MOP 74 Guidelines for Electrical Transmission Line Structural Loading; ASCE 48 Design of Steel

Facility Type	Standard Setting Organization and Consensus-Based Codes, Specifications and Standards
	Transmission Pole Structures • **Institute of Electrical and Electronics Engineers:** IEEE 1527, Recommended Practice for the Design of Busywork Located in Seismic Active Areas; IEEE 693 Recommended Practice for Seismic Design of Substations • **U.S. Department of Agriculture Rural Electric Service (RUS):** RUS Bulletins Transmission - 1724E-200, 1724E-204, 1724E-206, 1724E-214, 1724E-216, 1724E-224, 1724E-226, 1724E-300, 1728F-803, 1728F-804, 1728F-806, 1728F-810, 1728F-811, 1728H-701
Potable Water	• **American Society of Testing and Materials (ASTM):** ASTM-F-480-17, Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR) • **National Fire Protection Association (NFPA)** 1141 Standard for Fire Protection for Land Development in Wildland, Rural, and Suburban Areas • **National Standards Foundation (NSF):** NSF Standard 14, Plastic Piping System Components and Related Materials. NSF Standard 61, Drinking Water System Components – Health Effects
Wastewater	• **American Society of Testing and Materials (ASTM):** ASTM D-2321-18, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Installations; ASTM F-1417, Standard Practice for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air; ASTM C-12, Standard Practice for Installing Vitrified Clay Pipe Lines; ASTM C- 828, Standard Test Method for Low Pressure Air Test of Vitrified Clay Pipe Lines; ASTM C-478, Standard Specification for Circular Precast Reinforced Manhole Sections; ASTM C-1244, Standard Test Method for Concrete Sewer Manholes Negative Air Pressure (Vacuum) Test Prior to Backfill • **Great Lakes Upper Mississippi River Board of Provincial Public Health and Environmental Managers:** Recommended Standards for Wastewater Facilities