



# Consensus-Based Codes, Specifications and Standards for Public Assistance

## FEMA Recovery Interim Policy FP- 104-009-11 Version 2.1

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### 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 the Recovery Interim 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. Nothing in this Policy makes eligible the cost associated with ongoing operations and maintenance. This interim Policy supersedes the *Public Assistance Program and Policy Guide* (PAPPG)<sup>1</sup> subsection: FEMA Required Minimum Codes and Standards.

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<sup>1</sup> Found in FEMA’s *Public Assistance Program and Policy Guide*, FP104-009-2/April 2018. Chapter VII.B.2 Permanent Work Eligibility: Codes and Standards; FEMA Required Minimum Codes and Standards.



## PRINCIPLES

Application of the latest nationwide consensus-based 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 code, specification or standard that includes hazard-resistant designs and criteria will be strengthened and experience fewer interruptions and less damage in the future enabling those facilities to continue to function during and after a disaster.<sup>2</sup>
- B. Protect Lives and Property – Use of consensus-based codes, specifications and standards that include hazard-resistant designs and criteria 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 – Applicants using consensus-based codes, specifications and standards that incorporate hazard-resistance criteria for federally funded projects will reduce future vulnerability of disaster damaged facilities thereby reducing the need for future Federal disaster recovery funding and other assistance.

## REQUIREMENTS

### A. APPLICABILITY

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

1. Applicants under disasters declared on or after the date of this interim Policy must apply the relevant consensus-based codes, specifications and standards identified in Appendix A - Consensus-Based Codes, Specifications and Standards to all permanent work PA projects for applicable facility types (buildings, electric power, roads, bridges, potable water and wastewater) for which they are seeking funding.

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<sup>2</sup> 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. Applicants who fall into any of the following categories may submit to FEMA a written request to opt-in (example provided in Appendix B – *Opt-in Notification for Consensus-Based Codes, Specifications and Standards for Public Assistance*) to the guidelines of this interim Policy. If the PA funded construction has started or is complete, FEMA will not provide PA funding for any duplicative work as a result of opting into this Policy.
  - a. Incidents declared between August 1, 2017, and the date of the initial publication of this Policy,
  - b. projects associated with incidents declared before August 1, 2017, but have not been obligated based on a finalized cost estimate as of the date of the initial publication of this Policy,
  - c. projects that have an Applicant accepted fixed cost estimate (Section 428)<sup>3</sup>, that have not been obligated, and the Applicant has submitted its written notification to FEMA, can be considered under this Policy. The Applicant must accept the revised scope of work and fixed cost estimate related to codes, specifications and standards within 90 days of FEMA's receipt of its written notification. If the Applicant does not accept the fixed cost estimate within the 90-day timeframe, the project will retain its original accepted fixed cost estimate,
  - d. projects associated with a cost estimate on appeal as of the date of the initial publication of this Policy, or
  - e. applicants where the disaster has been declared and they have not yet participated in the Recovery Scoping Meeting (RSM), the 180-day timeline will start from the date of the RSM.

For a, b, c, & d the Applicant must submit the written notification within 180 days of the initial publication of this Policy and must identify the disaster(s) and facility(s) for which they are opting in.

Projects that have an obligated accepted fixed cost estimate (Section 428) will not be considered under this Policy.

For work completed, Applicants will have to demonstrate compliance with all applicable 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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<sup>3</sup> FEMA's PAAP Pilot Guide for Permanent Work (Version 4) is located at <https://www.fema.gov/media-library/assets/documents/162756>.



3. With the exception of projects involving buildings, where FEMA already has an existing minimum codes and standards policy, Applicants for all other infrastructure that fall under A.2 and who opt-in to this interim Policy can choose the facilities to apply the provisions of this Policy to within that disaster declaration.
4. This interim Policy applies to permanent work projects for the facilities where the consensus-based codes, specifications and standards are identified in Appendix A. Funding for locally adopted codes, specifications and standards for facilities not included in Appendix A or where the locally adopted codes, specifications or standards are more stringent or provide for more hazard resistance than the FEMA identified code, or standard, is eligible if it meets the five criteria under 44 C.F.R. § 206.226(d) as implemented in the PAPPG.<sup>4</sup>

## B. IMPLEMENTATION

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

1. When triggered in permanent work projects funded under the PA Program, FEMA will *require* Applicants to incorporate consensus-based codes, specifications and standards in the planning, design and execution of eligible repair, replacement, or new construction<sup>5</sup> projects.
2. If the Applicant identifies different locally adopted codes, specifications or standards that are the equivalent to or more stringent than the consensus-based codes, specifications and standards, FEMA requires the Applicant's engineer, design professional or other qualified individual to justify that the hazard-resistant design criteria in the locally adopted code, specification or standard is equivalent to or more stringent than those approved under this Policy.
3. FEMA may deviate from this interim Policy in circumstances where utilization of the consensus-based code, specification or standard is 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.

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<sup>4</sup> Eligibility criteria found in FEMA's Public Assistance Program and Policy Guide, FP104-009-2/April 2018. Chapter VII. Permanent Work Eligibility: Codes and Standards; or the most recent update to these criteria in the PAPPG.

<sup>5</sup> 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.



## C. IDENTIFICATION REQUIREMENTS

**Outcome:** Identify the applicable consensus-based codes, specifications and standards.

1. The Applicant will be responsible for identifying and applying the applicable consensus-based codes, specifications and standards used in each PA project.
2. This interim Policy is limited to the following facility types: buildings, electric power, roads, bridges, potable water and wastewater.
3. The Applicant will use the consensus-based codes, specifications and standards outlined in Appendix A as the minimum design criteria for eligible projects.
4. The Applicant must use the following criteria when implementing any of the consensus-based codes, specifications and standards identified in Appendix A:
  - a. The consensus-based 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.
  - 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 consensus-based codes, specifications and standards to the new capacity or function of the facility.
  - c. In the case where the consensus-based codes, specifications and standards 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.
5. FEMA will update Appendix A of this interim Policy periodically to incorporate additional consensus-based codes, specifications and standards. FEMA will only consider design and construction codes, specifications and standards that incorporate hazard-resistant design.
6. When the consensus-based 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 consensus-based codes, specifications and standards.
2. Acceptable forms of proof include but are not limited to written certification by a registered engineer, design professional, or other qualified individual that the project was designed and constructed in compliance with the applicable consensus-based codes, specifications and standards identified.
3. Failure to include these consensus-based 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.3.

## E. ADDITIONAL ELIGIBLE WORK AND COSTS

**Outcome:** Identify additional work and costs associated with implementing consensus-based 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 consensus-based codes, specification and standards under this interim 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 consensus-based 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

1. Repair versus replacement calculation. When evaluating whether a facility is eligible for replacement under 44 CFR § 206.226(f), upgrades to meet the identified consensus-based codes, specifications and standards under this interim Policy will be treated in the same manner as locally adopted codes, specifications and standards for the purposes of calculating repair and replacement costs.



**FEMA**

2. When a consensus-based code, specification or standard offers discretion in design, FEMA will fund the least expensive alternative unless FEMA determines, after demonstration by the Applicant's engineer, design professional or other qualified individual 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.

**RESPONSIBLE OFFICE**

Office of Response and Recovery  
Recovery Directorate  
Public Assistance Division

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*Keith Turi*  
*Assistant Administrator*  
*Recovery Directorate*

December 20, 2019

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Date





## ADDITIONAL INFORMATION

### REVIEW CYCLE

This is an interim Policy and will be followed by additional implementation guidance. In conjunction with publishing the interim 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 interim Policy and subsequent updates, FEMA may request performance information and documentation from Applicants. FEMA will evaluate this performance information and the implementation of this interim 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.

DRRA 1235(b) requires FEMA, in consultation with other Federal agencies, to issue a final rulemaking by April 5, 2020, to define the terms ‘resilient’ and ‘resiliency’. This time period applies only to the applicability of the definition of resilient and resiliency. FEMA is not using this interim Policy to issue a new definition for the terms “resilient” or “resiliency.” Further, prior to the enactment of the DRRA, the Stafford Act already provided FEMA the authority to require certain standards through the establishment of minimum standards under Section 323 and to require hazard mitigation under Section 406. As such the latest standards FEMA adopts in this interim Policy and any successor versions of this Policy will be effective regardless of whether a final rulemaking defining resilient and resiliency has been completed.

### 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.

### QUESTIONS

Direct questions to: [FEMA-Recovery-PA-Policy@fema.dhs.gov](mailto:FEMA-Recovery-PA-Policy@fema.dhs.gov)





## **Appendix A: Consensus-Based Codes, Specifications and Standards as of December 20, 2019**

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 interim 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, International Existing Building Code, International Energy Conservation Code, or International Residential Code, 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	<ul style="list-style-type: none"><li>• <b>International Code Council (ICC):</b> 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 Fuel Gas Code (IFGC); International Fire Code (IFC); ICC 500-14, ICC/NSSA Standard on the Design and Construction of Storm Shelters; ICC 600-14, Standard for Residential Construction in High-wind Regions</li><li>• <b>Institute of Electrical and Electronics Engineers:</b> National Electric Safety Code (NESC)</li><li>• <b>National Fire Protection Association (NFPA):</b> National Electrical Code (NEC); NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas; NFPA 1142, Standard on Water Supplies for Suburban and Rural Firefighting; NFPA 1144, Standard for Reducing Structure Ignition Hazards from Wildland Fire; NFPA 5000-2018, Building Construction and Safety Code</li><li>• <b>American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE):</b> Handbook of HVAC Applications</li><li>• <b>American Society of Civil Engineers (ASCE):</b> ASCE/SEI 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures; ASCE/SEI 24-14, Flood Resistant Design and Construction; ASCE/SEI 41-17, Seismic Evaluation and Retrofit of Existing Buildings; ASCE 8-17, Standard Specification for the Design of Cold-formed Stainless-Steel Structural Members; ASCE 49-07, Wind Tunnel Testing for Buildings and Other Structures</li><li>• <b>American Concrete Institute (ACI):</b> ACI 318-19, "Building Code Requirements for Reinforced Concrete; ACI 543R-12, Guide to Design, Manufacture, and Installation of Concrete Piles</li><li>• <b>American Institute of Steel Construction (AISC):</b> ANSI/AISC 303-16, Code of Standard Practice for Steel Buildings and Bridges; ANSI/AISC 360-19, Specification for Structural Steel Buildings; ANSI/AISC 341-18, Seismic Provisions for Structural Steel Buildings</li><li>• <b>American Society of Testing and Materials (ASTM):</b> ASTM E1886-13A, 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 E1996-14a, Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes; ASTM D2487-11, Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)</li></ul>



- **American Society Mechanical Engineers (ASME):** ASME/A17.1-2016/CSA B44-16, Safety Code for Elevators and Escalators
- **American Iron and Steel Institute (AISI):** AISI S100-16, North American Specification for the Design of Cold-formed Steel Structural Members
- **American Wood Council (AWC):** ANSI/AWC NDS-2018, National Design Specification (NDS) for Wood Construction-with 2018 NDS Supplement
- **Timber Piling Council (TPC):** TPC-2016, Timber Pile Const. Guide 2016
- **The Masonry Society (TMS):** TMS 402-2016, Building Code for Masonry Structures; TMS 602-2016, Specification for Masonry Structures
- **Steel Joist Institute (SJI):** SJI 100-15, 44th Edition Standard Specification Load Tables and Weight Tables for Steel Joists and Joist Girders K-Series, Series, DHL-Series, Joist Girders; SJI 200-15, Standard Specification for Composite Steel Joists, CJ-Series
- **The Aluminum Association (TAA):** ADM1, Aluminum Design Manual, Part 1 - A Specification for Aluminum Structures, 2015
- **Facilities Guideline Institute (FGI):** (FGI), Guidelines for Design and Construction of Hospitals/Outpatient, 2018; (FGI), Guidelines for Design and Construction of Residential Health, Care, and Support, 2018
- **Air Movement and Control Association (AMCA):** AMCA 540-13, Test Method for Louvers Impacted by Wind Borne Debris
- **Door and Access Systems Manufacturers Association (DASMA):** ANSI/DASMA 108-2017, Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference; ANSI/DASMA 115-2016, Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure
- **National Association of Architectural Metal Manufacturers (NAAMM):** NAAMM FP 1001-17, Guide Specifications for Design of Metal Flag Poles
- **ANSI/FM Approvals (FM):** FM 2510-2019, Flood Abatement Equipment
- CFR Title 24: Housing and Urban Development
- CFR Title 44: Emergency Management and Assistance



## Electric Power

- **U.S. Department of Agriculture Rural Electric Service (RUS):** RUS Bulletins  
Transmission - 1724D-106, 1724E-200, 1724E-203, 1724E-204, 1724E-205, 1724E-206, 1724E-214, 1724E-216, 1724E-224, 1724E-226, 1728F-810, 1728F-811, 1728H-701, 1730B-2  
Distribution - 50-4, 1724D-106, 1724E-150, 1724E-151, 1724E-152, 1724E-153, 1724E-154, 1728F-700, 1728F-803, 1728F-804, 1728F-806, 1730B-121, 1730B-2  
Substations - 1724E-300
- **International Code Council:** International Building Code (IBC); International Existing Building Code (IEBC); International Residential Code (IRC); International Energy Conservation Code (IECC); International Wildland-Urban Interface Code (IWUIC)
- **American Society of Civil Engineers (ASCE):** (ASCE/SEI 7-16) Minimum Design Loads and Associated Criteria for Buildings and Other Structures, (ASCE MOP 74) Guidelines for Electrical Transmission Line Structural Loading
- **Institute of Electrical and Electronics Engineers:** National Electric Safety Code (NESC)
- **National Fire Protection Association (NFPA):** National Electric Code (NEC); NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas; NFPA 1144, Standard for Reducing Structure Ignition Hazards from Wildland Fire



## 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, 7th Edition; LRFD Guide Specifications for Accelerated Bridge Construction, 1st Edition; Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition; Guide Specifications for Design of Bonded FRP Systems for Repair or Strengthening of Concrete Bridge Elements, 1st Edition, Guide Specifications for Bridges Vulnerable to Coastal Storms, 1st Edition, Guide Specifications for Design and Construction of Segmental Concrete Bridges, 2nd Edition; Guide Specifications for Wind Loads on Bridges During Construction, 1st Edition; Pavement Design, Construction, and Management: A Digital Handbook, 1st Edition; Guidelines for Geometric Design of Low-Volume Local Roads, 2019 Edition; AASHTO Drainage Manual, CD-ROM; Highway Drainage Guidelines, 4<sup>th</sup> Edition
- **American Concrete Institute (ACI):** ACI 301-16 - Specifications for Structural Concrete; ACI-341.2R-14 - Analysis and Design of Seismic-Resistant Concrete Bridge Systems, ACI-341.3R-07 - Seismic Evaluation and Retrofit Techniques for Concrete Bridges, ACI-341.4R-16 - Report on the Seismic Design of Bridge Columns Based on Drift, ACI-342R-16 - Report on Flexural Live Load Distribution Methods for Evaluating Existing Bridges, ACI-343R-95 - Analysis & Design of Reinforced Concrete Bridge Structures (Reapproved 2004), ACI-345.1R-16 - Guide to Maintenance of Concrete Bridge Members, ACI-345.2R-13 - Guide for Widening Highway Bridges, ACI-345R-11 - Guide for Concrete Highway Bridge Deck Construction, ACI-548.10-10 - Specification for Type MMS (Methyl Methacrylate Slurry) Polymer Overlays for Bridge and Parking Garage Decks, ACI-548.8-07 - Specification for Type EM (Epoxy Multi-Layer) Polymer Overlay for Bridge and Parking Garage Decks, ACI-548.9-08 - Specification for Type ES (Epoxy Slurry) Polymer Overlays for Bridge and Parking Garage Decks
- **American Welding Society (AWS):** D1.4/D1.4M: 2011 Structural Welding Code-Reinforcing Steel;
- **American Institute of Steel Construction (AISC):** ANSI/AISC 303 - Code of Standard Practice for Steel Buildings and Bridges
- **American Society of Civil Engineers (ASCE):** ASCE MOP 140 - Climate-Resilient Infrastructure: Adaptive Design and Risk Management, 2018
- **National Fire Protection Association (NFPA):** NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas



- **U.S. Department of Transportation (DOT), Federal Highway Administration (FHWA):** Federal Lands Highway Project Development and Design Manual (PDDM) (2018); 23 CFR Part 625 - Design Standards for Highways; HIF-18-046 - Manual for Refined Analysis in Bridge Design and Evaluation, 2019; HIF-18\_041 - Report on Techniques for Bridge Strengthening, 2019; HEC 17 - Highways in the River Environment- Floodplains, Extreme Events, Risk, and Resilience, 2nd Edition; HEC 25 - Highways in the Coastal Environment: Assessing Extreme Events, Volume 2, HDS 2 Highway Hydrology, 2<sup>nd</sup> Edition, Other Drainage and Hydraulic Design and Analysis – HDS 4, HDS 5, HDS 6, HEC 7, HEC 9, HEC 14, HEC 15, HEC 18, HEC 20, HEC 21, HEC 22, HEC 23, HEC 24, HEC 26; Geotechnical –Geotechnical Engineering Circulars 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, HIF-17-024 - Evaluation and Guidance Document for Post-Grouted Drilled Shafts for Highways



## Potable Water

- **Great Lakes - Upper Mississippi River, Board of Provincial Public Health and Environmental Managers:** Recommended Standards for Water Works 2012
- **American Water Works Association (AWWA):** Standards for Potable Water Source, Storage, Treatment, and Distribution; M2 - Instrumentation & Control, Third Edition; M6 Water Meters: Selection, Installation, Testing & Maintenance, Fifth Edition; M22 - Sizing Water Service Lines and Meters, Third Edition; M11 - Steel Pipe: A Guide for Design and Installation, Fifth Edition; M23 - PVC Pipe Design and Installation, Second Edition; M25 - Flexible Membrane Covers and Linings for Potable-Water Reservoirs, Third Edition; M28 - Rehabilitation of Water Mains, Third Edition; M31 - Distribution System Requirements for Fire Protection, Fourth Edition; M33 - Flowmeters in Water Supply, Third Edition; M41 - Ductile-Iron Pipe and Fittings, Third Edition; M42 - Steel Water-Storage Tanks, Revised Edition; M44 - Distribution Valves: Selection, Installation, Field Testing & Maintenance, Third Edition; M55 - PE Pipe Design and Installation; M68 – Water Quality in Distribution Systems; M77 - Condition Assessment of Water Mains; M45 Fiberglass Pipe Design, Third Edition
- **National Fire Protection Association (NFPA):** National Electric Code (NEC); NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas; NFPA 1142, Standard on Water Supplies for Suburban and Rural Firefighting; NFPA, 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire
- **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 Standards Foundation (NSF) American National Standards Institute (ANSI):** NSF/ANSI: Standard 61, Drinking Water System Components - Health Effects; NSF/ANSI Standard 14, Plastic Piping System Components and Related Materials
- **American Society of Civil Engineers (ASCE):** (ASCE MOP 132) Renewal of Potable Water Pipes; (ASCE MOP 127) Hydraulics of Wells: Design, Construction, Testing, and Maintenance of Water Well Systems, 2014; (ASCE MOP 108) Pipeline Design for Installation by Horizontal Directional Drilling, Second Edition; (ASCE MOP) 106 Horizontal Auger Boring Projects, Second Edition; (ASCE MOP 140) Climate-Resilient Infrastructure: Adaptive Design and Risk Management, 2018; (ASCE/SEI 24-14) Flood Resistant Design and Construction; ASCE/SEI 7-16) Minimum Design Loads and Associated Criteria for Buildings and Other Structures
- **Water Environment Federation:** MOP 32 - Energy Conservation in Water and Wastewater Treatment Facilities; MOP 26 – GIS Implementation for Water and Wastewater Treatment Facilities; MOP 28 – Upgrading and Retrofitting Water and Wastewater Treatment Plants
- **International Code Council:** International Building Code (IBC); International Existing Building Code (IEBC); International Energy Conservation Code, (IECC); International Residential Code (IRC); International Wildland-Urban Interface Code (IWUIC)





## Wastewater

- **Great Lakes - Upper Mississippi River, Board of Provincial Public Health and Environmental Managers:** Recommended Standards for Wastewater Facilities (10 States Standards) 2014
- **National Fire Protection Association (NFPA):** National Electrical Code (NEC); NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas; NFPA, 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire
- **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-1417-11a (2015), Standard Practice for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air; ASTM C-12-17, Standard Practice for Installing Vitrified Clay Pipe Lines; ASTM C-828-11, Standard Test Method for Low Pressure Air Test of Vitrified Clay Pipe Lines; ASTM C-478-18, 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
- **American Society of Civil Engineers (ASCE):** (ASCE - MOP 108) Pipeline Design for Installation by Horizontal Directional Drilling, Second Edition; (ASCE MOP 106) Horizontal Auger Boring Projects, Second Edition; (ASCE MOP 60) Gravity Sanitary Sewer Design and Construction Second Edition, 2007; (ASCE MOP 140) Climate-Resilient Infrastructure: Adaptive Design and Risk Management, 2018; (ASCE/SEI 7-16) Minimum Design Loads and Associated Criteria for Buildings and Other Structures;(ASCE/SEI 24-14) Flood Resistant Design and Construction
- **Water Environment Federation:** MOP 8 - Design of Water Resource Recovery Facilities; MOP FD-4 Design of Wastewater and Stormwater Pumping Stations; MOP 32 - Energy Conservation in Water and Wastewater Treatment Facilities MOP 21 – Automation of Water Resource Recovery Facilities, 4<sup>th</sup> Edition; MOP 26 – GIS Implementation for Water and Wastewater Treatment Facilities, MOP FD-12 – Alternative Sewer Systems, 2<sup>nd</sup> Edition; MOP FD-6 - Existing Sewer Evaluation and Rehabilitation, 3<sup>rd</sup> Edition; MOP FD-17 - Prevention and Control of Sewer System Overflows, 3<sup>rd</sup> Edition; MOP 25 - Control of Odors and Emissions from Wastewater Treatment Plants; MOP FD-19 – Natural Systems for Wastewater Treatment, 3<sup>rd</sup> Edition; MOP 28 – Upgrading and Retrofitting Water and Wastewater Treatment Plants; MOP 38 – Sustainability and Energy Management for Water Resource Recovery Facilities; FS – Sanitary Sewer Systems: Lift Stations and Data Management Fact Sheet, 2019
- **International Code Council:** International Building Code (IBC); International Existing Building Code (IEBC); International Energy Conservation Code, (IECC); International Residential Code (IRC); International Wildland-Urban Interface Code (IWUIC)



## Appendix B: Opt-in Notification for Consensus-Based Codes, Specifications and Standards for Public Assistance

In accordance with the Federal Emergency Management Agency (FEMA) Recovery Interim Policy FP-104-009-11, *Consensus-Based Codes, Specifications and Standards for Public Assistance (Policy)*, Applicants that meet the criteria below may elect to apply the Policy to one or more of their projects. If the PA funded construction has started or is complete, FEMA will not provide PA funding for any duplicative work as a result of opting into this Policy.

**Applicants wishing to participate must make their election no later than either:**

- **May 4, 2020, (180 days from date of initial Policy publication), or**
- **180 days after the date of the Recovery Scoping Meeting (RSM) for Applicants that have not yet participated in their RSM.**

This notification does not apply to Applicants in declarations on or after the date of the initial Policy publication.

Applicants may elect to opt-in if they have any of the following:

1. Damaged facilities in incidents declared between August 1, 2017, and the date of the initial Policy publication,
2. Projects associated with incidents declared before August 1, 2017, but not obligated based on a finalized cost estimate as of the date of initial Policy publication,
3. Projects that have an accepted fixed cost estimate (Section 428) and that have not been obligated<sup>1</sup>, or
4. Projects associated with a cost estimate on appeal as of the date of the initial Policy publication.

Applicant must identify the disaster number, declaration date, project number, project title, and facility name/site location using the attachment to this Appendix.

We,                     (name of Applicant)                    , elect to opt-in to Recovery Interim Policy FP-104-009-11, *Consensus-Based Codes, Specifications and Standards for Public Assistance* for the facilities listed in the attachment.

\_\_\_\_\_  
Signature of Subrecipient's Authorized Representative and Title (Printed) Date

\_\_\_\_\_  
Subrecipient Name PA ID Number

\_\_\_\_\_  
Signature of Recipient's Authorized Representative and Title (Printed) Date

\_\_\_\_\_  
Recipient Name Name of State or Tribe

Attachment

<sup>1</sup> The Applicant must accept the revised scope of work and fixed cost estimate related to codes, specifications and standards within 90 days of FEMA's receipt of its written notification. If the Applicant does not accept the fixed cost estimate within the 90-day timeframe, the project will retain its original accepted fixed cost.

