December 1, 2023

Office of Environmental Planning and Historic Preservation
Resilience
Federal Emergency Management Agency (FEMA)
U.S. Department of Homeland Security (DHS)
400 C St. SW, Suite 313
Washington, DC 20472–3020

Via regulations.gov

RE: comments of the International Code Council on the DHS/FEMA Proposed Policy: Federal Flood Risk Management Standard (FFRMS) - Docket ID: FEMA–2023–0026

The International Code Council (ICC) is a nonprofit organization of over 700 employees – driven by the engagement of its more than 60,000 members – dedicated to helping communities and the building industry provide safe, resilient, and sustainable construction through the development and use of model codes and standards used in design, construction, and compliance processes. Most U.S. states and communities, federal agencies, and many global markets choose the International Codes (I-Codes®) to set the standards for regulating construction and major renovations, plumbing and sanitation, fire prevention, and energy conservation in the built environment.

The codes, standards, and solutions developed by the International Code Council are used to ensure safe, affordable, resilient, and sustainable communities and buildings worldwide. This includes achieving flood resilience through the effective adoption and implementation of modern building codes and standards to provide building safety in response to increasing flood risk. The Code Council's comments regarding the Department of Homeland Security's (DHS) Federal Emergency Management Agency's proposed policy of the Federal Flood Risk Management Standard (FFRMS) are captured below.

The International Code Council strongly encourages DHS/FEMA to require up-to-date editions of the International Residential Code® (IRC®) and International Building Code® (IBC®) to ensure the FFRMS incorporates the most stringent flood provisions for federally assisted construction in flood zones. Doing so will ensure an enhanced level of resilience for both structures and communities in the face of growing flood risk across the nation. The savings and resilient benefits associated with incorporating the flood provisions captured in the current editions of the IRC® and IBC® during the development and implementation of the FFRMS are outlined in detail throughout these comments.

Federal agencies adopt I-Codes® and standards because they are national "voluntary consensus standards" under Office of Management and Budget (OMB) Circular A-119 and the *National Technology Transfer Advancement Act* (NTTAA), meaning they are developed in an open forum – with a balance of

interests represented and due process – that, ultimately, ensures a consensus outcome. All I-Codes® are updated on a three-year cycle, with the 2024 editions currently being introduced. The NTTAA, supplemented by OMB Circular A-119, directs federal agencies to use voluntary consensus standards wherever possible in their procurement and regulatory activities in lieu of expending public resources developing government unique standards. OMB Circular A-119 "directs agencies to use standards developed or adopted by voluntary consensus standards bodies rather than government-unique standards, except where inconsistent with applicable law or otherwise impractical."

In recent years, the federal government has increasingly moved towards ensuring federally assisted infrastructure adheres to modern construction standards. Such an approach was advanced during the prior Administration within the federal government's National Mitigation Investment Strategy[1] – developed by the Mitigation Federal Leadership Group (MitFLG), of which FEMA is a leading member – and continued by the current Administration through the National Initiative to Advance Building Codes[2] (NIABC). The goal of the NIABC is "to ensure that building activities receiving federal funding or financing will meet or exceed the latest building codes."

Despite the federal government investing billions of dollars in infrastructure annually and requiring current codes and standards for its own portfolio, FEMA is the only federal entity that currently requires that federally assisted projects adhere to up-to-date building codes and standards. FEMA has done so to "increase the resilience of communities after a disaster," "protect lives and property," and to "reduc[e] the need for future Federal disaster recovery funding and other assistance."[3]

Modern model building codes are among the most effective and systemic measures to reduce the risk to buildings and their occupants from natural and man-made hazards, including flood risk. Per FEMA, both the IRC® and IBC® provided more than $27 billion dollars in cumulative mitigation benefits against flood, hurricane, wind, and earthquake hazards from 2000 to 2016.[4] These benefits could have been doubled if all post-2000 construction adhered to the I-Codes®. FEMA projects that if all future construction adhered to current codes, the nation would avoid more than $600 billion in cumulative losses from floods and other hazards by 2060.[5] In its later *Building Codes Save* report, the Agency also found that that adopting up-to-date building codes' flood mitigation provisions preserved 786,000 structures and have saved $10 billion in avoided disaster losses.[6]

The National Institute of Building Sciences (NIBS) estimates that building to modern building codes saves $11 dollars for every $1 dollar invested through earthquake, flood, and wind mitigation benefits, while retrofitting structures to flood mitigation requirements in current codes can provide $6 dollars in mitigation benefits for every $1 dollar invested.[7] These benefits represent avoided casualties, property damage, business interruptions, first responder and annual homeownership costs, and are enjoyed by

---

[1] U.S. Department of Homeland Security (DHS) Mitigation Framework Leadership Group (MitFLG), *National Mitigation Investment Strategy* (Aug. 2019).
[2] The White House, FACT SHEET: Biden-Harris Administration Launches Initiative to Modernize Building Codes, Improve Climate Resilience, and Reduce Energy Costs (June 2022).
[3] Federal Emergency Management Agency (FEMA), Recovery Interim Policy FP-104-009-11, Version 2.1 (Dec. 2019).
[4] FEMA, *Protecting Communities and Saving Money: The Case for Adopting Building Codes* (Nov. 2020).
[5] Id.
[6] FEMA, *Building Codes Save: A Nationwide Study* (Nov. 2020).
[7] National Institute of Building Sciences (NIBS), *Natural Hazard Mitigation Saves: 2019 Report* (Dec. 2019).

all building stakeholders: from governments, developers, titleholders, and lenders, to tenants and communities. Better built buildings minimize repair and displacement costs and economic impacts following disasters[8] and reduce the risk of loss.[9]

The Hurricane Harvey after action report – produced by FEMA – determined that the I-Codes®' freeboard requirements reduced average claim payments by 90%.[10] And the Building Codes Save study published by FEMA in 2020 found that the I-Codes®' freeboard requirements could avoid nearly $177 billion dollars in flood losses by 2060.[11] Numerous additional provisions within the I-Codes® provide flood mitigation benefits and should also be considered in the FFRMS. Within the 2021 IBC® edition alone, FEMA has noted improvements concerning dry floodproofing, engineered openings, and secondary overflow drains. The Community Rating System (CRS) program of the National Flood Insurance Program (NFIP) administered by FEMA credits several I-Code® flood mitigation measures including, for example, where communities ensure fill is compacted and protected from erosion and scour, consistent with the IRC® and IBC® requirements, and where communities enforce the IBC® and IRC®'s positive drainage provisions.[12]

For flood resistant design – including establishing elevations of lowest floors, flood-resistant materials, equipment and floodproofing – the IBC® through its integration of American Society of Civil Engineers Flood Resistant Design and Construction Standard (ASCE 24-14) requires essential (or Risk Category IV) facilities' (e.g., hospitals, fire and police stations, emergency response facilities, disaster shelters, power stations, and water supply facilities) lowest floor elevation be the higher of base flood elevation plus freeboard specified in ASCE 24-14, the design flood elevation, or the 500-year flood elevation. ASCE 24-14 includes additional delineations by risk category.

Additionally integrated in the latest editions of the I-Codes® is the Structural Engineering Institute (SEI) of ASCE standard regarding the Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-22), different from previous versions of ASCE 7 because the environmental hazard data is now provided in a digital format. As research and scientific methodologies improve, the ability to develop more detailed and refined environmental source data has increased dramatically. While representative maps are included in ASCE/SEI 7-22 as published, the standard relies on digital data for all environmental hazards except wind and ice, and the data is easily accessed through the free-to-use ASCE 7 Hazard Tool, or an approved equivalent source.

All forms of mitigation produce benefits, including the effective implementation and enforcement of modern building codes. Properties experiencing repetitive losses should be rebuilt consistent with modern standards that mitigate flood risk. Strong code enforcement – which includes adequate staffing,

---

[8] Id.

[9] Id. See also Comments submitted by the Association of State Floodplain Managers (ASFPM) in Response to FR-6187-N-01, White House Council on Eliminating Barriers to Affordable Housing Request for Information (Docket HUD-2019-0092).

[10] FEMA, *Hurricane Harvey in Texas: Building Performance Observations, Recommendations, and Technical Guidance, Mitigation Assessment Team Report* (Feb. 2019).

[11] FEMA, *Building Codes Save: A Nationwide Study*; Losses Avoided as a Result of Adopting Hazard-Resistant Building Codes (Nov. 2020).

[12] FEMA, National Flood Insurance Program Community Rating System Coordinator's Manual (2017).

personnel certification that demonstrates an understanding of the codes being enforced, and continuing education on code updates; improvements in building science; and best practices – ensures codes' theoretical public safety and resilience benefits are fully realized in the field. These benefits have been quantified in several instances (e.g., strong code enforcement can help to reduce losses from catastrophic weather by 15 to 25 percent).[13]

Importantly, codes provide these benefits without appreciable implications for housing affordability; in fact, no peer-reviewed research has found otherwise. According to the Association of State Floodplain Managers (ASFPM), the insurance savings from meeting current codes' flood mitigation requirements can reduce a homeowner's net monthly mortgage and flood insurance costs by at least five percent.[14] The principal investigator for the NIBS report found that improvements to model building codes' resilience over the nearly 30-year period studied only increased a home's purchase price by only around half a percentage point in earthquake-prone or riverine flood-prone areas of the country.[15]

FEMA has analyzed the impacts of including building codes in NFIP previously and found that doing so would effectively reduce flood damage, increase property values, lower NFIP premiums, and make NFIP more actuarily sound.[16] The National Mitigation Investment Strategy (NMIS) notes that NFIP's building standards "predate modern up-to-date building codes and standards," and states that federal programs should require "up-to-date building codes and standards."[17]

Absent minimum flood provisions established within the FFRMS modeled after modern resilient building codes, infrastructure will be built to outdated and insufficient flood standards in many parts of the country. Per FEMA, roughly 69 percent of communities facing flood risk have not adopted modern building codes to help mitigate flood hazards.[18] And, in recent years, 30 percent of new construction has surprisingly been allowed to take place in communities with either no codes or codes that have not been updated in decades. Given the heterogeneity in the adoption of codes and standards across our country, FEMA's FFRMS should be modeled after the latest codes to ensure its investments in many parts of the country will provide ample flood resilience to posed risk of vulnerable buildings. In most cases, FEMA's FFRMS requirements will supersede the flood mitigation requirements contained in jurisdiction's building codes and thus the Agency has an opportunity to lead by example to promote enhanced resilience in the face of ever-growing flood risk.

FEMA's BRIC and Public Assistance Programs already require resilient codes and recovery and mitigation practitioners have been successfully implementing these requirements for the better part of a decade. Implementing enhanced construction standards, specifically the flood provisions captured in modern building codes, consistently across similar programs administered by the federal government would help

---

[13] Czajkowski, J. et. al., *Demonstrating the Intensive Benefit to the Local Implementation of a Statewide Building Code*, Risk Management and Insurance Review (2017).
[14] Comments of ASFPM in Response to FR-6187-N-01, White House Council on Eliminating Barriers to Affordable Housing Request for Information (Docket HUD-2019-0092).
[15] Porter, K., *Resilience-related building-code changes don't affect affordability*, SPA Risk LLC Working Paper Series 2019-01 (2019).
[16] FEMA, *Including Building Codes in the National Flood Insurance Program*, Fiscal Year 2013 Report to Congress: Impact Study for Biggert-Waters Flood Insurance Reform Act of 2012 (Jan. 2013).
[17] DHS MitFLG, *National Mitigation Investment Strategy* (Aug. 2019).
[18] FEMA, Resistant Code Adoption Statistics, Nationwide Building Code Adoption Tracking (Dec. 2023).

the reduce complexity and increase programmatic efficiency, while simultaneously easing implementation and strengthening practices for contractors, architects, and engineers in the field – we have said as much in recent comments to other departments and agencies regarding their own FFRMS policy solicitations.

Implementing enhanced construction standards consistently across like programs would help the federal government reduce complexity and increase programmatic efficiency, while at the same time easing implementation and strengthening practices for state, local, tribal, and territorial government program staff as well as contractors, architects, and engineers in the field.

The I-Codes® are the most widely adopted codes in the United States, noting that the IBC® is adopted or in use in 50 states and the IRC® in 49. Given the breadth of their use and acceptance and demonstrated hazard mitigation benefits, we strongly encourage FEMA to adopt the flood provisions of the 2021 – and subsequent – I-Codes®. To provide flexibility for practitioners in the field, FEMA's approach in Public Assistance – which provides that alternative codes or standards can be used so long as the applicant demonstrates that the adopted codes are "equivalent or more stringent," or where use of the delineated codes is "technically infeasible" may be necessary.[19] With this flexibility, the 2024 I-Codes® can address all possible considerations without the Agency creating an unnecessarily lengthy, and potentially conflicting, list of code and standards requirements that could lead to confusion or, worse, a lack of compliance in the field.

Ensuring the FFRMS is consistent with modern codes and flood standards will protect the people who use and occupy these structures as well as the federal government's own investment; is consistent with White House and FEMA policy; follows the federal government's requirements for its own buildings; and enjoys widespread support from across the political spectrum.

–

Thank you for the opportunity to provide comments. We would welcome the opportunity to discuss further with you as you work toward implementation of the FFRMS. Should you wish to schedule such a meeting or if you have any questions concerning these recommendations, please do not hesitate to contact us.

Sincerely,

Aaron Davis
Vice President, Federal Relations

[19] FEMA, Consensus-Based Codes, Specifications and Standards for Public Assistance, FEMA Recovery Interim Policy FP- 104-009-11 Version 2.1 (Dec. 2019). (Dec. 2019).