

DOE Docket No. EE-RM/STD-02-112

Energy Efficiency and Sustainable Design Standards for New Federal Buildings

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Thank you for providing time for our testimony today. We are pleased to be able to provide new information regarding the regulation of green construction, involving tools backed by six pre-eminent national organizations that are now available to address federal goals as well as meet the needs of state and local jurisdictions. To begin, I would like to give some background on the ICC itself.

The International Code Council is a membership association dedicated to building safety, fire prevention, and energy efficiency. Our International Codes, or I-Codes, provide state-of-the-art basic safeguards for people at home, at school and in the workplace. Our model building codes benefit public safety and support the industry's need for one set of codes without regional limitations. The International Code Council publishes the International Energy Conservation Code (IECC), which is referenced in the Energy Independence and Security Act of 2007, and is a national requirement in section 410 of the American Recovery and Reinvestment Act of 2009. Fifty states and the District of Columbia have adopted the I-Codes at the state or jurisdictional level. The IECC in particular is in use or adopted in 45 states, the District of Columbia, and the U.S. Virgin Islands. Federal agencies including the Architect of the Capitol, General Services Administration, National Park Service, Department of State, U.S. Forest Service and the Veterans Administration also enforce the I-Codes. The Department of Defense references the International Building Code for constructing military facilities, including those that house U.S. troops, both domestically and abroad.

The International Code Council (ICC) was established in 1994 as a non-profit organization dedicated to developing a single set of comprehensive and coordinated national model construction codes. Since the early part of the last century, three non-profit organizations developed three separate sets of model codes used throughout the United States. Although regional code development had been effective and responsive to our country's needs, the time came for a single set of codes. The nation's three model code groups responded by creating the

International Code Council and by developing codes without regional limitations – the International Codes.

Now, concerning the proposed rulemaking at hand, the ICC would like to offer the following comments.

First of all, the ICC applauds the Federal Energy Management Program for taking the steps to create clear, understandable and measurable criteria that Federal agency building owners and managers can use, allowing them to effectively build, operate and maintain sustainable and energy efficient buildings. We are confident this will not only set a positive example that can be emulated nationwide, but provide real benefits in operational savings and improved building conditions for both Federal employees and citizens who use the buildings.

However, we also must note, and we believe FEMP should recognize, that some of the terminology used in the legislation and in the proposed regulation does not reflect the most optimal blend of tools now in existence to achieve Congressional intent, instead reflecting only the options available at the time of drafting. Prior to this year, voluntary “rating” type programs were among the only options for guiding the design of green buildings. Such programs, including LEED, were not designed to act as regulatory language. In the absence of a model code to create a regulatory framework for green construction, rating systems helped bring the discussion of green design into focus, setting the stage for a baseline set of codes while LEED and other systems function as an additional set of criteria beyond this codified baseline. The gap between existing codes and rating systems has now been filled. With the publication of the International Green Construction Code (IGCC), which includes ANSI/ASHRAE Standard 189.1-2009 as an optional compliance path, there is now a new and comprehensive set of tools available in mandatory code language. The IGCC, jointly sponsored by the American Institute of Architects (AIA), ASTM International, ASHRAE, the U.S. Green Building Council and the Illuminating Engineering Society, contains provisions that are well adapted to the Federal government’s need for an enforceable, verifiable and adaptable document to facilitate the green and sustainable design, construction and renovation of Federal buildings. In addition, the IGCC references the NAHB/ICC ANSI- National Green Building Standard for residential construction.

The collective support for the IGCC by the International Code Council and its five cooperating sponsors signals a consensus of the key industry leaders around the necessity of a code to guide green construction. We are gratified that our colleagues at ASHRAE, who are testifying with us today, have joined us in this effort. The IGCC is a result of an early partnership with the AIA and ASTM International in response to the requests of jurisdictions around the country asking for regulations that would link closely in content and format to existing codes, and address concerns regarding the need to assure that sustainable construction is also safe construction. With the inclusion of the 189 Standard within the IGCC, ASHRAE, USGBC and IES joined the IGCC coalition. The presence of the U.S. Green Building Council underscores the role of a baseline code and an optional rating system as two bookends to creating a greener built environment. Our colleagues at the USGBC, the organization that originated the LEED standard, have publicly called for the adoption of the IGCC and described this new set of tools as allowing new versions of LEED to appropriately act as the “ceiling” in green construction while the IGCC serves as the “floor.” In short, the IGCC is the result of a collaborative effort of hundreds of green

building experts, integrating their work into a usable, enforceable document addressing every type of building, in a manner that is flexible enough to meet the needs of diverse jurisdictions.

To recast the proposed rule in this new context, we attempt to indicate throughout our comments the places where the language of the proposed rule is either too restrictive or uses inappropriate or outdated definitions or terminology that could disqualify buildings otherwise meeting state-of-the-art requirements in the rapidly evolving area of green construction.

In the context of the needs of the Federal government, it is also important to designate solutions that will keep up with construction technology, trends and innovations, and to do so through regular updating and publication of the documents used as reference resources. The IGCC covers this need as well. For those unfamiliar with the Code Council's development process, we convene and manage a transparent, participatory process driven by the consensus of voters in several stages. We begin with committees mixing government and industry, moving to a development hearing involving votes of governmental and non-governmental members, with final action taken by the enforcement community who will be required to interpret and implement the code. Federal officials and agency staff regularly contribute testimony and participate in our voting process. Our model code development process meets the principles outlined in the OMB Circular A-119, Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities, as codified by Public Law 104-113, the National Technology Transfer and Advancement Act of 1995.

ICC's long history of regularly updating the model codes every three years will allow the Federal Energy Management Program, like other federal programs ranging from regulating accessibility to mitigating natural hazards, to remain current with evolving technology and practical application of field experience.

One of the reasons that most Federal agencies today reference the Code Council's model codes, including the International Building Code and the International Residential Code, is the support that the ICC Technical Staff provides in terms of written code interpretations, plan review services, and code training and certification services. These same services that have long been associated with the International Building Code and International Residential Code will be made available for the IGCC as it is increasingly adopted by state and local jurisdictions and applied to federal properties.

We strongly encourage FEMP to reference the entire 2012 IGCC, including the ANSI/ASHRAE 189.1 compliance path option, and including ICC/NAHB 700 National Green Building Standard, as a means of meeting the requirements of this rulemaking in Part 433 and Part 435 as reflected throughout these comments.

[We have submitted specific section by section comments in my written testimony for your review and consideration. Thank you again for this opportunity to make this presentation, and along with our colleagues at ASHRAE and those at the other four organizations co-sponsoring the IGCC we encourage you to continue your support for our sustainability initiatives.]

The following specific comments are offered to improve the usefulness and measurability of the proposed rule and to facilitate the use of the IGCC as one of the tools available to Federal agencies for efficiently and rapidly achieving measurable levels of compliance with FEMP goals.

Part 433

Sec. 433.1

- ICC recommends deleting the definitions “major renovations” and “rapidly renewable” for the reasons following Sec. 433.2

Sec. 433.2

- ICC suggests deleting *Major Renovations* as a defined term. There is no need to limit the application of this proposal to “major” renovations or renovations over a certain cost threshold. This is a significant segment of the built environment which should not be ignored. Though some rating systems do limit their application to “major” renovations, the IGCC, ASHRAE 189.1 and ICC 700 are applicable to renovations of all sizes, and the mandatory language of the IGCC and ASHRAE Standard 189.1 make them simple to apply. Where application is burdensome to smaller projects, the IGCC provides exceptions or only applies to larger projects.
- ICC suggests deleting Rapidly Renewable as a defined term. Rapidly renewable on its own is not a preferable criterion over other renewable materials. The durability and effectiveness of the product for its intended purpose, for example, are also worthy of consideration. Products which have longer harvest periods may actually be preferable in many circumstances. Criteria for rapidly renewable materials have been or are being phased out of the provisions of many green and sustainable standards and rating systems.

Sec. 433.6

(a)

- All of the building types described in this section are either within the scope of the IGCC or the standards (ASHRAE Standard 189.1 and ICC 700) it references.

(b)(2)

- ICC recommends deletion of this exclusion. With a mandatory code such as the IGCC, which is designed to be understandable and enforceable, there is no need to exempt smaller buildings.

(e)(1)(i)

- The DOE’s conception of “integrated design” relies heavily on the commissioning process. Now, the IGCC addresses commissioning principles in both Chapter 6 (Energy conservation, efficiency, and atmospheric quality) and Chapter 9 (Commissioning, operation and maintenance). Pursuant to that standard, the IGCC contains minimum mandatory requirements that set goals which designers must always plan for. This way, the design team does not have to set its own goals unless it wants to go beyond the established minimums. Also, many large projects can be and are designed by a single design professional, making a design “team” an unnecessary accretion of individuals.
- When it comes to green building and technology, the end result is what is important, not the

process, and the IGCC requires that the end result be verified.

(e)(1)(iii)

- The IGCC fulfills all of the requirements described in this section.

(e)(2)

- The IGCC addresses commissioning principles in both Chapter 6 (Energy conservation, efficiency, and atmospheric quality) and Chapter 9 (Commissioning, operation and maintenance).

(f)(1)

- The IGCC addresses renewable energy systems in Section 611.

(f)(2)

- The IGCC addresses indoor water in Chapter 7 (Water Resource Conservation and Efficiency). The IGCC requires that plumbing fitting and fixture flow rates conserve at least 20 percent more water than the fitting and fixture flow rates permissible under the International Plumbing Code. Two tiers requiring 30 percent and 40 percent less water be used by plumbing fitting and fixtures are also included in Section 702.1.2. In addition, Chapter 7 of the IGCC addresses water conservation in many other ways.

(f)(2)(i)

- Water meters are required by Section 705.2 of the IGCC.

(f)(2)(ii)

- As required by this proposal, the IGCC regulates plumbing and fixture flow rates separate of other water related requirements.

(f)(3)

- The IGCC addresses outdoor water conservation in Chapter 4 (Site Development and Land Use) and Chapter 7 (Water Resource Conservation and Efficiency).

(f)(4)

- Rather than specify WaterSense labeling, (which is a consumer marketing program with requirements other than water conservation) the IGCC specifies water conservation requirements for appliances and fixtures which are at least the equivalent of WaterSense labeled appliances and fixtures.

(f)(5)

- The International Residential Code and the International Building Code contain many stringent requirements related to the mitigation of water intrusion and moisture control. The IGCC contains additional provisions related to moisture control in Sections 506.2 and 507.7.

(f)(6)(i)

- The IGCC addresses daylighting in Section 809.

(f)(6)(ii)

- The IGCC addresses automatic dimming in Sections 609 and 612.

(f)(7)

- The IGCC addresses material VOC emissions in Section 806.

(f)(8)(i)

- The IGCC addresses indoor air quality during construction in Section 803.1.2 and its subsections.

(f)(8)(ii)

- A fourteen day building flush out period is required by the IGCC in Section 804.3

(f)(9)

- Material resource conservation is addressed by IGCC Chapter 5.

(f)(9)(ii)

- Recycled content, bio-based content, used materials and more are addressed in IGCC Section

503.2 and its subsections. Rapidly renewable materials are no longer recognized as particularly greener or more sustainable than other renewable materials.

(f)(9)(iv)(A)

- The IGCC addresses waste materials management in Section 502.

(f)(9)(iv)(B)

- The IGCC requires space for recyclable materials in buildings in Section 502.2 and 502.3.

(f)(9)(v)

- IGCC Section 502.1 requires the amount of construction waste which is required to be recycled to be selected by the adopting entity from three percentage values.

(f)(10)

- The IGCC addresses siting in Chapter 4 (Site Development and Land Use).

(g)(1)

- The IGCC addresses ventilation by reference to the International Mechanical Code in Section 102.4.3.
- The International Mechanical Code (IMC) contains requirements which are equivalent to the ventilation rate procedure (Section 6.2) of Standard 62.1.
- The IGCC addresses thermal comfort by reference to ASHRAE Standard 55 in Section 803.2.

(g)(2)

- The IGCC contains environmental tobacco smoke control requirements in Section 803.3, but it does not prohibit smoking in buildings. Federal law already bans smoking in Federal buildings.

Sec. 433.7

- The IGCC addresses water conservation in Chapter 7 (Water Resource Conservation and Efficiency).

Sec. 433.9

- Although this section requires a *certification system*, the intent would also likely be met by a *verification system*, such as would be used to verify compliance with the IGCC or ASHRAE Standard 189.1. A verification system requires that a third party verify each required element in the adopted code document with respect to the building that is being examined. Certification implies payment of fees to a third party and the issuance of a certificate affirming that the building achieves specified requirements.
- Note that, although point based rating systems typically have minimum requirements at their lowest performance level in each environmental category (e.g. water and energy), additional points can be earned in whatever category is easiest or most cost effective to achieve higher performance levels. This, coupled with the fact that point based systems have few mandatory and many elective or optional provisions, means that rating systems often produce unpredictable results. The IGCC, on the other hand, allows the adopting entity (in this case the Federal Energy Management Program) to customize by indicating specific goals for each environmental category in Table 302.1 and contains primarily mandatory and few elective requirements, thereby producing much more predictable and dependable results.

- ICC 700, though it is a point based rating system, differs from most in that it requires performance be ramped up in each and every environmental category at each of its four performance levels.
- ASHRAE Standard 189.1 primarily contains minimum requirements for sustainable construction. It is not a rating system, does not contain performance thresholds and does not contain electives. It does, however, offer both prescriptive and performance options for many of its requirements. ASHRAE Standard 189 is a compliance option included within the IGCC, and can be used if specified by the adopting entity.
- All other requirements of Section 433.9 are satisfied by the IGCC.

Part 435

Sec. 435.1

- The ICC recommends replacing “certification” with “verification”; for an explanation, see the reasons following Section 433.9.
- The ICC also recommends deleting definitions for “major renovation” and “rapidly renewable”. See the comments for Section 435.2 immediately below.

Sec. 435.2

- There is no need to limit the application of this proposal to “major” renovations. All renovations should be addressed. In fact, by doing so, a major portion of the built environment will not be addressed. Though some rating systems do limit their application to “major” renovations, ICC 700, as referenced in the IGCC for low-rise residential buildings, is applicable to renovations of all sizes.
- “Rapidly renewable” on its own is not a preferable criterion over other renewable materials. The durability and effectiveness of the product for its intended purpose, for example, are also worthy of consideration. Products which have longer harvest periods may actually be preferable in many circumstances. Criteria for rapidly renewable materials have been or are being phased out of the provisions of many green and sustainable standards and rating systems.

Sec. 435.6

(b)(2)

- There is no need to limit the application of this proposal to small or low budget projects. The IGCC references ICC 700 for low-rise residential buildings and ICC 700 is intended to regulate new residential buildings of all sizes and budgets, including renovations to those buildings of all sizes and budgets.

(e)(1)

- Again, the DOE language earlier in the document focused almost exclusively on commissioning when discussing integrated design. For low-rise residential buildings, the important aspects of commissioning are verification of proper implementation of green and sustainable practices, which ICC 700 requires.
- Also, many large projects today can be and are designed by a single design professional. Furthermore, ICC 700 provides enough prescriptive guidance so that a design “team” is often

unnecessary. Design teams are typically expensive, and additional consultants can complicate and burden small projects. Again, it is the end result that is the important factor, not the process, and both ICC 700 and the IGCC require that the end result be verified.

(e)(2)

- The IGCC references ICC 700 for low-rise residential buildings. As stated previously under Integrated Design, the ICC 700 addresses commissioning in the form of verification requirements.

(e)(2)(i)

- All commissioning agents must gain experience at some point. Therefore, the current language would prevent many from gaining that initial experience. Conversely, a provider who is experienced but not certified may unwittingly be doing things wrong. Thus, certification of the commissioning provider should be the determining factor, not experience.

(f)(1)

- Renewable energy is encouraged, but not required, by Sections 704.3, 704.3.1, 704.3.2, 704.3.3 and 705.2 of ICC 700.

(f)(2)

- ICC 700 regulates both indoor and outdoor water in Chapter 8, Water Efficiency.
- ICC 700 encourages many water conservation related practices, including the reduction of potable water use and the use of rainwater, treated wastewater and water-efficient products, therefore, while not specifically mandated, it would be nigh impossible for a building receiving a Bronze ICC 700 certification not to reduce its potable water usage by at least 20 percent based on sample DOE FEMP data, pursuant to EO 13423.

(f)(4)

- Again, rather than specify WaterSense labeling, the IGCC specifies water conservation requirements for appliances and fixtures which are at least the equivalent of WaterSense labeled appliances and fixtures. Requiring Watersense labeled products may add cost without adding additional value or performance.

(f)(5)

- ICC 700 addresses moisture control in Section 903, Moisture Management.

(f)(6)

- Although ICC 700 does not provide requirements for daylighting, the International Residential Code (IRC), which governs low-rise residential buildings, does.
- Section R303 of the IRC contains requirements for a minimum glazed area which is equal to at least 8 percent of the floor area of all habitable spaces, with an exception which allows lighting to be provided by mechanical means.

(f)(7)

- ICC 700 regulates material emissions and encourages the use of low-emitting materials in Sections 901.4 through 901.11.

(f)(8)

- ICC 700 regulates materials and encourages material conservation in Chapter 6, Resource Efficiency.
- Chapter 6 of ICC 700 encourages:
 - The use of recycled, reused and biobased materials
 - Waste materials management
 - Space be provided for occupant recycling
 - The use of Life Cycle Assessment and ecolabels to select environmentally preferable

products.

- It is not necessary that specific recycling and salvage operations be identified during the planning stages. Successful bidding contractors are not typically known during the planning stage. Successful bidders should be free to select the best option available to them and should be free to change to another recycling or salvage operation at their discretion.
- Again, the ICC recommends deleting the term “rapidly renewable” for reasons discussed pertaining to Section 435.2.

(f)(9)

- ICC 700 addresses siting in Chapter 4 (Site Design and Development) and Chapter 5 (Lot Design, Preparation and Development).

(g)(1)

- ICC 700 addresses ventilation and thermal comfort in Chapter 9, Indoor Environmental Quality.

(g)(2)

- ICC 700 addresses radon in Section 902.3, Radon Control.

Sec. 435.7

- ICC 700 addresses water conservation in Chapter 9 (Water Efficiency).

Sec. 435.9

- Again, although the above requires a *certification system*, the intent would also likely be met by a *verification system*, such as would be used to verify compliance with the IGCC or ASHRAE Standard 189.1. Verification is typically used to assure compliance with a building code, such as the IGCC, which is stated in mandatory language.
- Again, note that, although point based rating systems typically have minimum requirements at their lowest performance level in each environmental category (e.g. water and energy), additional points can be earned in whatever category is easiest or most cost effective to achieve higher performance levels. That, and the fact that point based systems have few mandatory and many elective or optional provisions, means that rating systems often produce unpredictable results. The IGC, on the other hand, allows the adopting entity to customize by indicating specific goals for each environmental category in Table 302.1 and contains primarily mandatory and few elective requirements, thereby producing much more predictable and dependable results.