ASHRAE Shaping Tomorrow's Built Environment Today

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Mr. Henry McKoy
Director
Office of State and Community Energy Programs
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Request for Information (RFI) on Inflation Reduction Act (IRA) Section 50131 *Technical Assistance for Latest and Zero Building Energy Code Adoption* (DE-FOA-0003054)

Dear Director McKoy:

ASHRAE is submitting this response to the U.S. Department of Energy (DOE) Request for Information (RFI) on the Inflation Reduction Act (IRA) Section 50131, *Technical Assistance for Latest and Zero Building Energy Code Adoption*. ASHRAE, founded in 1894, is a technical society advancing human well-being through sustainable technology for the built environment. The Society and its more than 53,000 individual members – comprising engineers, academics and other professionals in the buildings industry – focus on building systems, energy efficiency, indoor air quality, refrigeration and sustainability within the industry. ASHRAE's standards development process is rigorous, and it is one of only six standards-developing organizations in the U.S. that can self-certify that its standards have followed procedures established by the American National Standards Institute (ANSI).

ASHRAE Standard 90.1 has been a benchmark for commercial building energy codes in the United States for almost half a century and has continued to improve over time. Section 50131 (b)(1)(B) recognizes the proven success of the standard by including Standard 90.1-2019 as an eligible "latest building energy code" for the $330 million to assist States and local governments with adopting modern building energy codes. ASHRAE has other standards and technical resources that also should be considered as the DOE develops and effectively implements an IRA codes program. The below responses provide details on those resources.

Category 1: Selection Criteria & FOA Issues

C1.2 ***What guidance should DOE provide applicants around "equivalent or greater energy savings," including both timeframe over which savings must be achieved, and scope of***

where savings occur? How should emissions reductions be considered?

The most recent version of ASHRAE's Energy Conservation Standard, ASHRAE Standard 90.1-2022 includes Informative Appendix I*: Using Other Metrics in Conjunction with Appendix G Performance Rating Method When Approved by the Rating Authority*. Appendix I provides an **equivalent zero energy code** by providing new guidance on using carbon emissions, site energy or source energy as alternative performance metrics. DOE should allow ASHRAE Standard 90.1-2022 Appendix I to be used as an "*equivalent stretch code*" under Section (c) (1) of the IRA, "ZERO ENERGY CODE," which provides $670 million to States and units of local governments to adopt a building energy code that meets or exceeds the zero energy provisions in the 2021 IECC code or an *equivalent stretch code*. It is notable that Appendix I of ASHRAE Standard 90.1-2022 allows a jurisdiction to use carbon emissions, site energy or source energy as alternative performance metrics, providing states and local communities with flexibility.

C1.2

ASHRAE Standard 90.1-2019 is identified as an alternative compliance pathway for the 2021 IECC, Appendix CC *Zero Energy Commercial Building Provisions*, per section C401.2.2. However, CC103 of the 2021 IECC only recognizes ASHRAE Standard 90.1-2019 as an alternative compliance pathway if energy simulations are used. It does not provide the option for using the 90.1-2019 prescriptive path as an alternative to the IECC prescriptive approach by applying the EUI method described below.

> *"When Section C401.2.1(1) is used for compliance with the International Energy Conservation Code, building energy shall be determined by multiplying the gross conditioned floor area plus the gross semiheated floor area of the proposed building by an EUI selected from Table CC103.1. Use a weighted average for mixed-use buildings.*
>
> *When Section C401.2.1, Item 2* ***or Section C401.2.2***[1] *is used for compliance with the International Energy Conservation Code, building energy shall be determined from energy simulations."*

By restricting states that adopt ASHRAE Standard 90.1-2019 to using energy simulations for verifying compliance with 2021 IECC zero energy codes, DOE would eliminate a viable alternative (prescriptive compliance) for states seeking funding assistance from the Section 50131 funding for zero energy provisions. To provide equal opportunity and increase zero energy code adoption, DOE should specify in the anticipated FOA that both Standard 90.1-2019 prescriptive and performance pathways could be used in conjunction with Appendix CC of the 2021 IECC to satisfy the requirements of an equivalent net zero energy code.

[1] Section C401.2.2 ASHRAE 90.1. Commercial buildings shall comply with the requirements of ANSI/ASHRAE/IESNA 90.1.

Category 4: Existing Building Opportunities

C4.1 ***What types of existing-building codes or standards (e.g., building performance standards) should be considered? Should these existing-building codes or standards be encouraged to focus on particular types of buildings?***

ASHRAE Standard 100-2018, *Energy Efficiency in Existing Buildings,* offers over 100 typical energy efficiency measures (EEMs) that can be applied to enable existing-buildings meet energy targets, identifying commonly applied upgrades that can improve building performance. ASHRAE Standard 100 is under continuous maintenance and proposed revisions include a change to the Title, Purpose, and Scope that would significantly improve the standard so that it could be used as a Building Performance Standard. The proposed title would be *Energy and Emissions Building Performance Standard for Existing Buildings,* and the purpose would include both the establishment of building greenhouse gas (GHG) emissions and energy consumption performance levels. The Standard would provide a technical basis for setting building performance standards and providing procedures and programs essential to energy efficient operation, maintenance, management, and monitoring.

We encourage DOE to reference ASHRAE Standard 100 in its FOA so that states and localities will be aware that it is a useful tool for creating and implementing a BPS. In addition, we ask DOE to reference ASHRAE Standard 211-2018, *Standard for Commercial Building Energy Audits*. This standard establishes consistent practices for conducting and reporting energy audits for commercial buildings. ASHRAE Standard 211 is currently out for reaffirmation public review and as part of the review is adding an informative appendix that provides practices for including a carbon audit that is the equivalent to the level 1 energy audit. may also be updated to include carbon audits. DOE should consider encouraging eligible entities to use ASHRAE Standards 100 and 211 to help them practically address energy and carbon performance goals for existing buildings.

C4.2 ***How should DOE think about calculating equivalent energy savings for existing-building codes or standards? How should emissions savings be considered?***

ASHRAE recently released a new standard: ANSI/ASHRAE Standard 228-2023, *Standard Method of Evaluating Zero Net Energy and Zero Net Carbon Building Performance*. Standard 228 can be used to determine whether a site has achieved zero net energy or zero net carbon, meaning that the source energy or carbon flows coming into a site are less than or equal to those flowing outward during building/site operation and any allowed offsets. For existing buildings, ASHRAE Standard 228-2023 includes the following approach for zero net energy compliance in existing buildings:

> *"4.2.4.3 Zero net energy building or portion of building compliance requirement for existing sites shall be calculated as follows: the sum of energy credit, E_{net}, as determined by Section 6 Equation 1, for the two most recent years of determination shall be less than or equal to zero."*

DOE should consider including Standard 228 as an option for existing buildings to demonstrate compliance with zero energy codes.

C4.5 ***What resources and tools should DOE provide, as well as those that DOE can leverage that already exist, to support existing-building codes and standards?***
ASHRAE's Task Force for Building Decarbonization (TFBD), with support from the Pacific Northwest National Laboratory, recently released *Building Performance Standards: A Technical Resource Guide*. This comprehensive guide provides practical tools and resources on Building Performance Standards (BPS) to assist policy makers and practitioners in developing a BPS policy that advances decarbonization and energy efficiency in existing buildings. The guide does not require one specific pathway for BPS, rather it provides jurisdictions with the advantages and disadvantages of different metrics, recommendations for establishing performance targets, and the best practices for addressing major policy considerations. As part of the FOA, DOE should make available and encourage use of *Building Performance Standards: A Technical Resource Guide* to guide eligible entities through establishing BPS that are best applied to their jurisdictions.

Please do not hesitate to contact me for more information, or have your staff contact GovAffairs@ashrae.org. Thank you again for your consideration of our comments.

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