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Sent: Tuesday, March 15, 2022 10:02 AM
To: CodesStandards, DAS
Cc: Cassidy, Joseph
Subject: 2022 CT Energy Code change proposal
Attachments: [2022 CT State Energy Code Change Proposal Maria Karpman.docx](#)

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Hi Joe,

I would like to propose the following changes to the 2022 CT Energy Code:

1. Remove IECC Section C407 Total Building Performance compliance option, leaving 90.1 Section 11 and Appendix G as the only whole building performance paths of compliance with 2022 CT Energy Code
2. Require use of [DOE ASHRAE Standard 90.1 2019 Section 11 and Appendix G Compliance Form](#) .

Justification for the changes and the suggested code language are described in the attached document. These recommendations are aligned with the findings of a multi-year US DOE - funded effort to streamline the whole building performance compliance documentation, and would allow Connecticut design teams and jurisdictions to take advantage of the tools and resources developed as part of this DOE effort.

Please let me know if you have any questions.

Thank you,

Maria
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Summary of the proposed changes

1. Remove Chapter C407 Total Building Performance compliance option, leaving 90.1 Section 11 and Appendix G as the only whole building performance paths of compliance with 2022 CT Energy Code
2. Require use of [DOE ASHRAE Standard 90.1 2019 Section 11 and Appendix G Compliance Form](#) .

Justification

2021 IECC and the draft 2022 CT State Building Code includes three whole building performance-based compliance options— IECC Chapter 407 (Total Building Performance), 90.1 Section 11 (Energy Cost Budget Method) and 90.1 Appendix G (Performance Rating Method). US Department of Energy has initiated a multi-year effort to streamline whole building performance-based compliance documentation and enforcement. The work was informed by a group of national stakeholders, including several from Connecticut. Based on the stakeholder survey [1], the 90.1 Section 11 is used more often for the minimum compliance. The 90.1 Appendix G was originally developed specifically for evaluating high performance designs and is an overwhelming favorite for above-code programs. Starting with the 90.1 2016 edition, Appendix G has become an approved path for documenting minimum compliance with Standard 90.1, but many jurisdictions with earlier base codes (e.g., New York and Connecticut) already accept it as a compliance option. The survey has also found that the use of IECC Chapter 407 is going down. For example, it is no longer allowed by NYC Energy Code 2020 or New Jersey energy code.

Commercial buildings that follow prescriptive path often use COMcheck to document compliance. However, COMCheck doesn't support whole building performance projects. The DOE stakeholders identified development of a standardized compliance form for such projects as the highest priority for streamlining enforcement. To address this gap, DOE has funded development of the [ASHRAE Standard 90.1 Performance Based Compliance Form](#) [2] that supports ASHRAE 90.1 2016/2019 Section 11 and Appendix G. The form is actively maintained through ongoing DOE funding and is already adopted by several jurisdictions (e.g., New York City Department of Buildings, Seattle Department of Buildings, Washington State) and beyond-code program (e.g., EPA ENERGY STAR Multifamily New Construction Program). It is also being considered for adoption for LEED v4.1 EA energy performance credit. DOE Energy Codes website includes a comprehensive submittal Review Manual that is based on the information provided in the Compliance Form, and free trainings are available on the use of the Compliance Form and Review Manual. On the other hand, there is no standardized compliance form for IECC Chapter 407, Total Building Performance.

The existence of three significantly different building energy modeling protocols complicates enforcement. Jurisdictions need to have submittal reviewers proficient with each approach, permit applicants can “path shop” for a protocol that is more lenient for the project at hand, and submittals often erroneously mix and match requirements of the different protocols. Since IECC Chapter C407 (Total Building Performance) use is going down based on the national survey, and it lacks a standard reporting format, we propose eliminating this compliance options from 2022 CT Energy Code and requiring the use of DOE 90.1 Section 11 and Appendix G Compliance Form by projects that pursue these compliance options.

[1] [Performance-Based Code Compliance: A Roadmap to Establish Quality Control and Quality Assurance Infrastructure \(energycodes.gov\)](https://www.energycodes.gov/ashrae-standard-901-performance-based-compliance-form)

[2] [ASHRAE Standard 90.1 Performance Based Compliance Form | Building Energy Codes Program](https://www.energycodes.gov/ashrae-standard-901-performance-based-compliance-form)

Proposed code language

C401.2.1 International Energy Conservation Code

Commercial buildings shall comply with one of the following:

1. Prescriptive Compliance. The Prescriptive Compliance option requires compliance with Sections C402 through C406 and Section C408. Dwelling units and sleeping units in Group R-2 buildings without systems serving multifamily units shall be deemed to be in compliance with this chapter, provided that they comply with Section R406.
2. Total Building Performance. The Total Building Performance option requires compliance with ~~Section C407.~~ [ANSI/ASHRAE/IESNA 90.1 Section 11 or Appendix G](#)

90.1 11.7.2 Permit Application Documentation

Compliance shall be documented [using the forms developed by the U.S. Department of Energy¹](#), and submitted to the *building official*. The information submitted shall include the following:

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G1.3.2 90.1 Section G1.3.2 Application Documentation

Simulated performance shall be documented [using the forms developed by the U.S. Department of Energy²](#) and documentation shall be submitted to the rating authority. The information shall be submitted in a report and shall include the following:

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¹ <https://www.energycodes.gov/ashrae-standard-901-performance-based-compliance-form>

² <https://www.energycodes.gov/ashrae-standard-901-performance-based-compliance-form>