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NEMI's Proposed changes to the CEC 45-day language

Additional submitted attachment is included below.

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Docket No. 24-BSTD-01 California

Docket Unit, MS-4

Energy Commission Docket Unit,

1516 Ninth Street Sacramento, CA 95814-5512

2025 Energy Code Efficiency Standards

Re: Recommended 45 Day Language Comments

As an established leader in enhancing building safety and health, the National Energy Management Institute (NEMI) is committed to advancing energy efficiency across the industry. With this commitment in mind, we propose specific amendments to the 2025 California Energy Code. Our suggestions aim to optimize energy performance and environmental sustainability in ways that are both innovative and practical. By aligning our expertise in building systems with the state's energy goals, NEMI seeks to foster a collaborative effort with the California Energy Commission (CEC) to set new standards that benefit all Californians.

1) §10-102

Comment-

The change from HERS to ENERGY CODE COMPLIANCE (ECC) PROGRAM is not appropriate and will create confusion. The Acceptance Test Technician (ATT) program also covers ENERGY CODE COMPLIANCE (ECC). The proposed name change should be adjusted to cover represent the program's limited scope. ("residential construction"). Proposed change for all locations containing "ECC".

Proposed Change-

RESIDENTIAL ENERGY CODE COMPLIANCE (RECC) PROGRAM

2) 10-103.2(c)Fii & iii

Comment-

The suggestion to conduct shadow audits at a training center is a positive step forward. However, it is crucial that such audits do not impose excessive burdens on Acceptance Test Technician Certification Providers (ATTCPs) who are responsible for their implementation. While the idea of executing random mechanical audits at job sites could be effective under certain conditions, it will prove impractical for widespread implementation due to challenges related to access, security, safety, and legal considerations.

Therefore, ATTCPs should be afforded the flexibility to carry out shadow audits either on-site or at a training center, depending on the specific situation. Consequently, the regulations and objectives governing shadow audits should be consistent, irrespective of the location where they are conducted. Furthermore, there is a need for clarification on the general requirement for 1% audit frequency to ensure uniform compliance across all ATTCPs. The proposed amendment to the existing 45-day rule aims to address these concerns.

Proposed Change-

ii. By the end of each code cycle, ~~T~~the ATTCP shall review a random sample of no ~~less~~ fewer than 1 percent of each ATT's completed compliance forms in the prior code cycle. This requirement shall not apply to ATTs that have completed fewer than 20 compliance forms in the prior code cycle.

~~iii. The ATTCP shall perform shadow audits by meeting either of the following:~~

By the end of each code cycle, ~~T~~the ATTCP shall ~~also randomly select and~~ shadow audit each ATE. The number of shadow audits for each ATE shall be equivalent to no ~~less~~ fewer than 1 percent of each ATE's overseen projects in the prior code ~~cycleIndependent oversight may be demonstrated by accreditation under the ISO/IEC 17024 standard.~~

iii. The ATTCP shall perform the shadow audit by randomly selecting an ~~each~~ ATT employed by the ATE ~~at an ATTCP training facility at least once per code cycle where the ATTCP~~ shall and observinge the performance of the ATT on at least five functional tests either:

a. On the job site; or

b. At an ATTCP training facility.

iv. The shadow audit at an ATTCP training facility must replicate field conditions for installed equipment and controls in a building. The ATTCP training facility where the shadow audit is performed shall be setup to allow auditing of all functional tests for which the ATT is certified.

v. The shadow audits must be in addition to any testing used for ATT recertification.

3) 10-103.3(a)

Comment-

The proposed scope of the Energy Code Compliance (ECC) Program, outlined in Section 10-103.3(a), currently does not match the defined purpose of the ECC Program. According to the definition in Section 10-102, the ECC Program is specifically designed for field verification and diagnostic testing in **residential** construction. To avoid ambiguity and ensure clarity, the language describing the scope of the ECC Program should explicitly be limited to residential buildings only. This adjustment will align the program's scope with its intended purpose as clearly defined in the Energy Code.

Proposed Change-

(a) Scope. The requirements in this section apply to RECC-Providers, RECC-Raters, and RECC-Rater Companies performing residential work relating to field verification and diagnostic testing for the Residential Energy Code Compliance (RECC) Program. The ECC Program is intended to verify that the newly constructed residential buildings and additions and alterations to existing residential buildings comply with the requirements of the Building Energy Efficiency Standards in order to protect consumers from poor construction and installations.

4) 160.2(b)2.A.iv.b.2 (Compartmentalization Testing

Comment-

The alternative procedure provides for an unfair market advantage as sampling would not be allowed. Compartmentalization Testing in multifamily buildings with four or more habitable stories should remain under the scope of the ATT until an equitable option for sampling can be provided.

Proposed Change-

2. ~~Supply or exhaust ventilation with c~~ Compartmentalization ~~t~~Testing. ~~Continuously operating supply ventilation systems or continuously operating exhaust ventilation systems shall be allowed to be used to provide the required whole-dwelling unit ventilation airflow only if t~~The dwelling unit envelope leakage ~~is~~ shall ~~be less than or equal to~~ not exceed 0.3 cubic feet per minute at 50 Pa (0.2 inch water)

per ft2 of dwelling unit envelope surface area as confirmed by ECC-rater ~~HERS~~field verification and diagnostic testing in accordance with the procedures specified in Reference Appendix RA3.8 or NA2.3 as applicable. In multifamily buildings with four or more habitable stories, the field verification and diagnostic testing shall ~~which requires an ECC Rater may alternatively~~ be performed by a certified Mechanical Acceptance Test Technician according to the requirements specified in Reference Appendix NA~~1.9~~ 2.3.

5) Section 160.3(d)2.B (Compartmentalization Testing)

Comment-

The alternative procedure provides for an unfair market advantage for HERS (ECC) testers as sampling would not be allowed by an ATT certified individual or company. Compartmentalization Testing in multifamily buildings with four or more habitable stories should remain exclusively under the scope of the ATT until an equitable option for sampling can be provided.

Proposed Change-

B. In multifamily buildings with four or more habitable stories, dwelling unit enclosure leakage shall be tested in accordance with NA7.18.2 when exhaust or supply ventilation systems are used for compliance with whole-dwelling unit ventilation requirements as specified in Section 160.2(b)2.A.iv.b.2.

6) 160.2(b)2.B.iv

Comments-

The alternative procedure provides for an unfair market advantage for HERS (ECC) testers as sampling would not be allowed by an ATT certified individual or company. Dwelling unit field verification and diagnostic testing in multifamily buildings with four or more habitable stories should remain exclusively under the scope of the ATT until an equitable option for sampling can be provided.

Proposed Change-

iv. In multifamily buildings with four or more habitable stories, the field verification and diagnostic testing required in Section 160.2(b)2.B.i, ii, and iii ~~which requires an ECC Rater may alternatively~~ shall be performed by a certified Mechanical Acceptance Test Technician according to the requirements specified in Reference Appendix NA~~1.9~~ 2.3.

7) Section 160.3(d)2.A

Comment-

The alternative procedure provides for an unfair market advantage for HERS (ECC) testers as sampling would not be allowed by an ATT certified individual or company. Dwelling unit field verification and

diagnostic testing in multifamily buildings with four or more habitable stories should remain exclusively under the scope of the ATT until an equitable option for sampling can be provided.

Proposed Change-

A. In multifamily buildings with four or more habitable stories, dwelling unit ventilation systems shall be tested in accordance with NA7.18.1.

NA1.9.1 Field Verification by the Acceptance Test Technician

Comment-

The alternative procedure provides for an unfair market advantage for HERS (ECC) testers as sampling would not be allowed by an ATT certified individual or company. Systems verified under the alternative procedure should be permitted to utilize the sampling procedures described in NA1.6. Not allowing sampling for an ATT will impede competitiveness and create a market disadvantage for the ATT. The CEC needs either provide an equal opportunity for sampling under NA 1.6 or remove the sampling option altogether.

Proposed Change-

Under this alternative procedure, when the Certificate of Compliance indicates that HERS field verification and diagnostic testing is required as a condition for compliance with Title 24, Part 6, a certified ATT may perform the verification to satisfy the condition of compliance.~~, at the discretion of the enforcement agency~~. ~~Systems verified under this procedure are not eligible for use of the sampling procedures described in NA1.6.~~

8) 140.9(c)1.C/ NA7.16

Comment-

The section clearly calls out for an acceptance requirement and that a certificate of acceptance be submitted to the enforcement agency.

- "Applicable equipment and systems shall be certified as meeting the acceptance requirements for code compliance…"
- "…a certificate of acceptance shall be submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.16" The associated acceptance forms should be dedicated to a Mechanical Acceptance Testing technician to ensure that

the intent of this requirements was achieved.

Proposed Change-

C. Applicable equipment and systems shall be certified as meeting the acceptance requirements for code compliance, as specified by the reference Nonresidential Appendix NA7.16. A certificate of acceptance shall be completed by a certified ATT and submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.16.

9) SECTION 140.9(b)3 – PRESCRIPTIVE REQUIREMENTS FOR COVERED PROCESSES

Comment-

The section clearly calls out for an acceptance requirement and that a certificate of acceptance be submitted to the enforcement agency.

- "Applicable equipment and systems shall be certified as meeting the acceptance requirements for code compliance…"
- "…A certificate of acceptance shall be submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.11" The associated acceptance forms should be dedicated to a Mechanical Acceptance Testing technician to ensure that the intent of this requirements was achieved.

Proposed Change-

b.3. Kitchen exhaust system acceptance. Before an occupancy permit is granted for a commercial kitchen subject to Section 140.9(b), the following equipment and systems shall be certified, by a certified ATT, as meeting the acceptance requirements for code compliance, as specified by the Reference Nonresidential Appendix NA7. A certificate of acceptance shall be submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.11.

10) 140.9(c)4B /NA7.17

Comment-

The section clearly calls out for an acceptance requirement and that a certificate of acceptance be submitted to the enforcement agency.

- "Applicable equipment and systems shall be certified as meeting the acceptance requirements for

code compliance…"

- "…a certificate of acceptance shall be submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA…" The associated acceptance forms should be dedicated to a Mechanical Acceptance Testing technician to ensure that the intent of this requirements was achieved.

Proposed Change-

B. Fume Hood Automatic Sash Closure Acceptance. Before an occupancy permit is granted for the fume hoods subject to 140.9(c)4, the equipment and systems shall be certified, by a certified ATT, as meeting the Acceptance Requirement for Code Compliance as specified by the Reference Nonresidential Appendix NA7. A Certificate of Acceptance shall be submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.17.

11) 140.3 (a) 9 C/ NA5.5 Enclosure Measurement Procedures

Comment-

This test should follow NA5.8 and NA5.9 to ensure adequate reports and independent third-party verification. The testing should also include fundamental workforce standards for these tasks which would include certification as an ATT and as a Testing, Adjusting, and Balancing technician.

Proposed Change-

C. Verification. Verification of the installed air barrier may be performed. i. If verification is performed the entire building shall meet one of the following requirements: a. An air leakage rate not exceeding 0.40 cfm/ft2 at a pressure differential of 0.3 in. of water (1.57 psf) (2.0 L/m2 at 75 Pa). when the entire building is tested, after completion of construction, in accordance with NA 5, or another test method approved by the Commission; or b. For buildings that have more than 50,000 ft2 of conditioned floor area, a sectional test method of co-pressurizing representative test floors and taking data from the specific floors to achieve the requirement in Section 140.3(a)9Ci when following the procedures in Sections NA5.2 to NA5.~~7~~9. Representative test floors must meet the following conditions: I. The entire floor area of all stories that have any spaces directly under a roof. II. The entire floor area of all stories that have a building entrance or loading dock. III. Representative above grade wall sections of the building totaling at least 25 percent of the wall area enclosing the remaining conditioned space. Floor areas in Parts a and b above shall not be included in the 25 percent. ii. If the air leakage requirements of either Section 140.3(a)9Cia or 140.3(a)9Cib are not met, a visual

inspection and diagnostic evaluation shall be completed in accordance with NA5.7, all observed leaks shall be sealed where such sealing can be made without destruction of existing building components, and buildings where the tested leakage rate exceeded 0.6 cfm/ft2 of building shell area at 75 Pa have been retested to confirm leakage is below 0.6 cfm/ft2 of building shell at 75 Pa.

12) 140.4 (a) 3.A&B

Comment-

The proposal presents significant constraints primarily targeted at design professionals, potentially inflating costs for end users without clear evidence of universal energy savings across all building types. While a performance option exists for designers to explore alternative approaches, its adoption may be hindered by increased expenses and intricate requirements, discouraging the utilization of established, effective technologies. It's crucial to consider the diverse needs of rural and smaller facilities, granting them the flexibility to select from a wider array of design options tailored to meet regional energy standards and indoor air quality objectives.

Proposed Change-

Multizone zone space-conditioning system types. Multizone space conditioning systems in office buildings and school buildings not covered by Section 140.4(a)2 shall meet the following requirements~~.~~: A. Offices. Office buildings shall use space conditioning systems complying with one of the following requirements: i. The space conditioning system shall be a variable refrigerant flow (VRF) heat pump system with a dedicated outdoor air system (DOAS) providing ventilation. Indoor fans shall meet the requirements of Section 140.4(a)3D. The DOAS shall comply with Section 140.4(a)3.E; or. ii. The space conditioning system shall be a four-pipe fan coil (FPFC) system with a DOAS providing ventilation. The FPFC hot water coils shall be supplied by an air-to-water heat pump (AWHP) space-heating hot water loop which complies with Section 140.4(a)3.C. The DOAS shall comply with Section 140.4(a)3.E; or. iii. The space conditioning system shall utilize heating supplied through a hot water loop served by an AWHP which complies with Section 140.4(a)3.C. Ventilation systems shall include DCV in all zones. All air systems shall be equipped with a heat recovery system in compliance with Section 140.4(q). A hydronic recirculated-air heating system complying with Section 140.4(a)3.F shall be used in climate zone 16. B. School buildings. The space conditioning system shall be four-pipe fan coil (FPFC) terminal units with a DOAS providing ventilation. The FPFC hot water coils shall be supplied by an air-to-water heat pump (AWHP) space heating hot water loop which complies with Section

140.4(a)3.C. The DOAS shall comply with Section 140.4(a)3.E.

13) 140.4 (c) 2.A.B

Comment-

We propose the integration of a requirement for certified Acceptance Test Technicians (ATTs) to conduct construction inspections and functional verification of static pressure resets in conjunction with NRCA-MCH-07A. Additionally, the inclusion of ASHRAE Guideline 36 in the code necessitates the expansion of functional performance tests detailed in the existing NRCA-MCH-07A Mechanical form. These critical tests should also be performed by certified ATTs to ensure compliance with the new guidelines and maintain the highest standards of energy efficiency and system reliability.

Proposed Change-

Static pressure sensor location. Static pressure sensors used to control variable air volume fans shall be placed in a position such that the controller set point is no greater than one-third the total design fan static pressure, except for systems with zone reset control complying with Section 140.4(c)2B. If this results in the sensor being located downstream of any major duct split, multiple sensors shall be installed in each major branch with fan capacity controlled to satisfy the sensor furthest below its setpoint; and B. Setpoint reset. For systems with direct digital control of individual zone boxes reporting to the central control panel: 2025 Building Energy Efficiency Standards Page 347 SECTION 140.4 – PRESCRIPTIVE REQUIREMENTS FOR SPACE CONDITIONING SYSTEMS i., static pressure setpoints shall be reset based on the zone requiring the most pressure; ~~i.e., the setpoint is reset lower until one zone damper is nearly wide open.~~ ii. Control sequences of operation for static pressure setpoint reset shall be in accordance with ASHRAE Guideline 36. iv., Applicable equipment and systems shall be certified as meeting the acceptance requirements for code compliance, as specified by the reference Nonresidential Appendix NA7.7. A certificate of acceptance shall be completed by a certified ATT and submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.7.

14) 140.4 (d)2.A

Comment-

We propose the integration of a requirement for certified Acceptance Test Technicians (ATTs) to conduct construction inspections and functional verification of temperature resets in conjunction with NRCA-MCH-16A. Additionally, the inclusion of ASHRAE Guideline 36 in the code necessitates the expansion of functional performance tests detailed in the existing NRCA-MCH-016A Mechanical form. These critical tests should also be performed by certified ATTs to ensure compliance with the new guidelines and maintain the highest standards of energy efficiency and system reliability.

Proposed Change-

2. Zones served by variable air-volume systems that are designed and controlled to reduce, to a minimum, the volume of reheated, recooled, or mixed air are allowed only if the controls meet all of the following requirements: A. For each zone with direct digital controls (DDC): i. The volume of primary air that is reheated, recooled, or mixed air supply shall not exceed the larger of: a. 50 percent of the peak primary airflow; or b. The design zone outdoor airflow rate as specified by Section 120.1(c)3. ii. The volume of primary air in the deadband shall not exceed the design zone outdoor airflow rate as specified by Section 120.1(c)3. iii. The first stage of heating consists of modulating the zone supply air temperature setpoint up to a maximum setpoint no higher than 95ºF while the airflow is maintained at the dead band flow rate. iv. The second stage of heating consists of modulating the airflow rate from the dead band flow rate up to the heating maximum flow rate. v. Control sequences of operation for reheat zones shall be in accordance with ASHRAE Guideline 36. vi. Applicable equipment and systems shall be certified as meeting the acceptance requirements for code compliance, as specified by the reference Nonresidential Appendix NA7.16. A certificate of acceptance shall be completed by a certified ATT and submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.16.

15) 110.2(e) NA.5.7.18

Comment-

We wish to emphasize that our intent is focused on data collection during the construction inspection phase of this test, specifically by the certified Acceptance Test Technician (ATT). The ATT is not responsible for reviewing or verifying the design or engineering aspects of the project.

We appreciate the California Energy Commission's dedication and effort towards shaping the 2025 California Energy Code. Your commitment to improving energy efficiency and building standards is instrumental in moving our state towards a more sustainable future. NEMI values this opportunity to contribute to these important discussions and looks forward to continuing our collaboration. Thank you for considering our recommendations and for your ongoing work in this vital area.

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