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NEMI 15 day Comments

Additional submitted attachment is included below.

3180 Fairview Park Drive, Suite 400 ⍰ Falls Church, Virginia 22042
(o) 703-739-7100 ⍰ (f) 703-683-7615 ⍰
www.nemionline.org

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 15 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". While multiple organizations, including the CEC (Joe Loyer), have acknowledged confusion with the proposed ECC name change, the 15-Day language did not address this concern.

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.

Where we appreciate the CEC addressing how many tests the training center must be equipped to handle in the 15-day language (*The ATTCP training facility shall be set up to allow auditing of all functional tests for which the ATT is certified.)* The 15-day language does provide clarification ON what "1%" is based on, outside of an ATE's total projects, or provide equitable flexibility to carry out shadow audits either on-site or at a training center, depending on the specific situation. It is also unclear what an ATTCP should do if they provide both on-site audits and audits in training centers since one would require only 1% of an ATE's projects while training centers would require all of an ATTCP's ATT's be shadow audited in each code cycle. We strongly encourage the CEC to address these concerns with the proposed changes.

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) 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.

The 15-day language does not address the unfair market advantage created by not allowing and ATT to perform sampling while allowing ECC raters that ability for the same requirement. (NA1.9.1 Field Verification by the Acceptance Test Technician – "…Systems verified under this procedure are **not eligible for use of the sampling procedures** described in NA1.6.") As previously recommended, 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.

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.

4) 160.2(b)2.B.iv

No change for 15-day language.

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. Per NA1.9.1 Field Verification by the Acceptance Test Technician "Systems verified under this procedure are not eligible for use of the sampling procedures described in NA1.6."

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.

5) 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.

The 15-day language does not address the issue of market inequality. Sampling needs to be allowed for all technicians or none at all.

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.~~

6) 140.9(c)1.C/ NA7.16

No change for 15-day language.

Comment-

The section specifically states that a certificate of acceptance be submitted to the enforcement agency. "…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. We request that the CEC make clear in the Energy Code that this requirement must be completed by a certified Mechanical Acceptance Testing technician to ensure that its intent was achieved.

- "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.

7) 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.

- "the following 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.

No change in the 15-day language. Qualifications for this work should be assigned to achieve intent of NA7.11.

Proposed Change-

140.9(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.

8) 140.9(c)4B /NA7.17

No change for 15-day language.

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.

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

(15 Day Language corrected NA5.7 to NA5.9 but not the workforce standards)

Comment-

The testing should include fundamental workforce standards for these tasks which would include certification as an ATT.

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, performed by an ATT in accordance with NA 5, or another test method performed by an ATT and 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.

10) 140.4 (a) 3.A&B

Comment-

While we appreciate the CEC making several crucial changes and additions to this proposed section, we continue to have concerns about the constraints that are presented to design professionals by limiting the options for space conditioning systems. Maintaining flexibility, within reason, for designers will help keep costs down for schools with budget constraints while maintaining the intention of the Energy Code.

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.

15-Day language:

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 that incorporates refrigerant-loop heat recovery and ~~with~~ a dedicated outdoor air system (DOAS) providing ventilation to all zones served by the space-conditioning system. 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) terminal unit ~~system~~ with a DOAS providing ventilation to all zones served by the space-conditioning system. The FPFC hot water coils shall be supplied by an air-to-water heat pump (AWHP) space-heating hot water loop ~~which~~ that complies with Section 140.4(a)3.C. Indoor fans shall meet the requirements of Section 140.4(a)3D. 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~~ that complies with Section 140.4(a)3.C. The system shall be designated to operate with a water temperature leaving the AWHP that is no greater than 105 °F. ~~Ventilation systems shall include DCV in all zones.~~ ~~All air~~ Ventilation systems serving the space-conditioning system zones 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)3F shall be used in climate zones 2 through 4 and 6 through 16.

B. School buildings. The space conditioning system shall be four-pipe fan coil (FPFC) terminal units with a DOAS providing ventilation to all zones served by the space-conditioning system. 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. Indoor fans shall meet the requirements of Section

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

11) 140.4(c)2Biii

Comment-

The inclusion of ASHRAE Guideline 36 in the 15-day language 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-

iii. Applicable equipment and systems shall be certified as meeting the acceptance requirements for code compliance, as specified by the reference Nonresidential Appendix NA7.5.6. 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 NA7.5.6.

12) 140.4 (d)2.A

No change for 15-day language.

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 NA7.5.15. 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 NA7.5.15.

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.

Steven Winstead

Representative Western Region

National Energy Management Institute

3180 Fairview Park Drive, Suite 400 Falls

Church, VA 22042

(C) 916-502-2394