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**CALIFORNIA ENERGY COMMISSION**

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CEC-057 (Revised 1/21)

**FINAL STATEMENT OF REASONS**

**PROPOSED BUILDING STANDARDS  
OF THE CALIFORNIA ENERGY COMMISSION  
REGARDING THE 2025 BUILDING ENERGY EFFICIENCY STANDARDS,  
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1, CHAPTER 10  
AND PART 6  
(2025 CALIFORNIA ENERGY CODE)  
[CEC 01/24]**

**(DOCKET NO. 24-BSTD-01)**

**California Energy Commission**

**UPDATES TO THE INITIAL STATEMENT OF REASONS:**

In response to public comment the following modifications were made to the regulation text:

**Sections:** Part 1 and Part 6 (Including Reference Appendices)

**Purpose:** The specific purpose of these changes is to help clarify the implementation of the Energy Code. There are proposed changes throughout Part 1 and Part 6 that make non-substantive changes, for example: formatting changes, comma changes, connective phrases, and other grammatical alterations. These changes appear throughout Parts 1 and 6 (including the Reference Appendices: Joint Reference Appendix, Residential Reference Appendix, and Nonresidential Reference Appendix) of the Energy Code, this is intended to identify the purpose and necessity as a consolidated grouping.

**Necessity:** This change is necessary to maintain a clear intention and implementation of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-102 Definition – ACM Approval Manuals

**Purpose:** The specific purpose of this change is to delete the definition of the ACM Approval Manuals.

**Necessity:** The information in the ACM Approval Manual was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. A definition was no longer needed for the ACM Approval Manual. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of

the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-102 Definition – Exemplary ECC-Rater

**Purpose:** The specific purpose of this change is to consistently use the term “Exemplary” in the definition of “Exemplary ECC-Rater.”

**Necessity:** The revision is necessary to maintain the consistency with the updated term use in Section 10-103.3(d)5B. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-102 Definition – Long-Term System Cost (LSC)

**Purpose:** The purpose of this change is to update the definition for “Long-Term System Cost (LSC)” to align with the definition used in the Energy Code.

**Necessity:** The revision is reasonably necessary to maintain the consistency with the updated term defined in Section 100.1(b) of the Energy Code. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-102 Definition – Reference Appendices

**Purpose:** The purpose of this change is to update the definition Reference Appendices to remove reference to the ACM Approval Manual.

**Necessity:** The requirements of the ACM Approval Manual were moved into Section 10-109 and 10-116 of the 2025 Energy Code. Thus, reference to ACM Approval Manual is no longer necessary. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.1(c)3Fiiib

**Purpose:** The specific purpose of this change is to clarify that the acceptance test technician is only to be audited on the performance of those acceptance tests for which they are certified to perform. **Necessity:** This revision is necessary because not all acceptance test technicians are certified to perform all acceptance tests. It would be grossly unfair to require the acceptance test technician certification provider to audit the acceptance test technician on an acceptance test that they are not permitted to perform. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.2(c)3Fiiib

**Purpose:** The specific purpose of this change is to clarify that the acceptance test technician is only to be audited on the performance of those acceptance tests for which they are certified to perform.

**Necessity:** This revision is necessary because not all acceptance test technicians are certified to perform all acceptance tests. It would be grossly unfair for the acceptance test technician certification provider to be required to audit the acceptance test technician on an acceptance test that they are not permitted to perform. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(a)

**Purpose:** The specific purpose of adding three instances of “residential” is to clarify that the scope of the Energy Code Compliance program is limited to residential construction only.

**Necessity:** The revision is necessary to clarify that the ECC program is limited to residential construction and does not include nonresidential construction or the use of nonresidential programs such as the Acceptance Test Technician Certification Provider program. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(b)1Avii

**Purpose:** The specific purpose of this change is to add new language to define registration of the Consumer Information Form as submitting the information outlined in this coded section, as well as to clarify that the ECC-Provider develops the Consumer Information Form.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(b)1Avii

**Purpose:** The specific purpose of this change is to add new language to allow the Energy Commission optionally to review and recommend changes to the Consumer Information Form. **Necessity:** The proposed change is reasonably necessary to allow the Energy Commission to raise issues regarding the Consumer Information Form without the necessity to do so. This will help alleviate potential delays in creating this form as well as to help ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(b)1Avii

**Purpose:** The specific purpose of this change is to clarify when and how an ECC-Rater or ECC-Rater Company must register a Consumer Information Form and issue it to the homeowner. Additionally, language is added to the end of this section to clarify that the registration of the consumer Information Form is not subject to the registration requirements in JA7 and only incorporates the elements specified in this Section.

**Necessity:** The proposed change is reasonably necessary to support consumer awareness of the ECC program, help ensure that the ECC-Rater or ECC-Rater Company does not undermine the ECC Program. Thus, ensuring and improving the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(b)1Avii

**Purpose:** The specific purpose of this change is to reorganize the proposed language to improve clarity. The changes move the requirement to develop a Consumer Information Form from the bottom of the Section to the top.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)1Bii

**Purpose:** The specific purpose of this change is to remove the restriction of in-person testing for challenge tests.

**Necessity:** In-person testing for challenge tests was found in workshops with stakeholders to artificially restrict the ability of ECC-Raters located far from major cities in California to be able to be certified by multiple ECC-Providers. The change allows ECC-Providers to implement the challenge test using an online learn system which can be accessed from anywhere with internet access. The revision is necessary to remove this unnecessary barrier to allow for more ECC-Raters to be certified under multiple ECC-Providers. The change will help to expand the options for ECC-Raters in the marketplace without degradation of code compliance. Thus, ensuring reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)2Diii

**Purpose:** The specific purpose of this change is to replace “Verified-Active” with “Exemplary-Active.”

**Necessity:** The revision is necessary maintain the consistency with the updated term used in Section 10-103.3(d)5B. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)4Fiv

**Purpose:** The specific purpose of this change is to correct the use of “Verified-Active” with “Exemplary-Active.”

**Necessity:** The revision is necessary maintain the consistency with the updated term use in Section 10-103.3(d)5B. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103(d)5B

**Purpose:** The specific purpose of this change is to delete the phrase “one non QII shadow audit, one in lab audit” which was intended to be removed prior to publication of the 45-day Express Terms in pre-rulemaking ([CalCERTS: 24-BSTD-01, TN#257097](#)).

**Necessity:** Shadow audits were altered to address QII only. All non-QII audits and lab-audits were eliminated altogether from these quality assurance measure due to the determination by staff that these audits would be cost prohibitive for the ECC-Providers. This proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)5Ci

**Purpose:** The specific purpose of this change is to remove language that is duplicated in Section 10-103.3(d)5Cif, specifically “Additionally, onsite audits shall be performed for every 100 dwelling units or single family residences (or both in combination) in a single development constructed by a single developer that make use of the sample-group provisions (Building Energy Efficiency Standards Reference Appendix RA 2.6)”

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)5Ci

**Purpose:** The specific purpose of this change is to remove the language “seventh sample group used in a single residential development”, which was duplicated in Section 10-103.3(d)5Cif in the last draft of the proposed terms but is now itself replaced with a different trigger based on the first 100 units in a sample-group.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)5Cif

**Purpose:** The specific purpose of this change is to add a start-trigger for onsite audits of sample-groups to be the 100th unit (either multifamily unit, single family home or any

combination of the two) added to a sample-group within the development. This change also clarifies that there is no requirement to keep any dwelling unit in any sample-group open beyond the requirements in the Building Energy Efficiency Standards Reference Appendix RA 2.6.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)5Cif(i)

**Purpose:** The specific purpose of this change is to remove “in the same sample group being tested” from this requirement and allow the audit for the tested home and untested home to be from different sample groups.

**Necessity:** This revision is necessary to allow more flexibility when performing quality assurance audits for homes included in sample groups, which will reduce the cost and complexity of the ECC program for ECC-Providers without degradation of the intended quality assurance goals. The proposed change is reasonably necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)5Cif(iii)

**Purpose:** The specific purpose of this change is to allow quality assurance audits for sample groups to also satisfy ECC-Rater audit requirements when appropriate, at the discretion of the ECC-Provider.

**Necessity:** This revision is necessary to reduce potentially unnecessary costs and confusion regarding the applicability of the quality assurance requirements for sample groups to the quality assurance requirements for ECC-Raters. It is left at the discretion of the ECC-Provider because the ECC-Provider may find it necessary to reexam the ECC-Rater or to perform additional quality assurance checks on the ECC-Rater not covered by the sample-group checks (as required in Section 10-103.3(d)5C)). The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)5Cif(iv)

**Purpose:** The specific purpose of this change is to clarify that a failed audit of a tested dwelling unit does not impact the compliance status of the sample-group. The change also clarifies the required next steps in the event of a failed audit.

**Necessity:** This revision is necessary to clarify that sample-group compliance status is not modified by a failed onsite audit of a tested dwelling unit. Furthermore, it is necessary to ensure that an audit failure is reported to the ECC-Rater, ECC-Rater Company, and the developer as well as recorded by the ECC-Provider and reported to the Energy Commission. These reporting requirements give fair notification to all parties with a material interest of the audit failure so that they can take reasonable action to possibly remedy the

issue. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)5Cig

**Purpose:** The specific purpose of this change is to clarify that in the event that the ECC-Provider is refused access to the project site, investigating the ECC-Rater and ECC-Rater Company is at the discretion of the ECC-Provider.

**Necessity:** This revision is necessary to clarify the original intent of this requirement. If the ECC-Provider is refused access to the project site in order to perform the required quality assurance audit for sample-groups, the ECC-Provider may include the ECC-Rater or ECC-Rater Company in their investigations, for example in the event that misconduct is suspected. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)5Ciia

**Purpose:** The specific purpose of this change is to allow the ECC-Provider to work with the ECC-Rater to schedule the required shadow audit.

**Necessity:** This revision is necessary to give the ECC-Provider needed flexibility when scheduling shadow audits for Quality Insulation Installation (QII) verifications. QII can only be audited as a shadow audit because once the insulation is inspected, the wall board is installed and QII is no longer possible to verify. The ECC-Provider cannot schedule this as a walk-on (or surprise) inspection with any expectation of it being successful (regardless of pass or fail). This change allows the ECC-Provider to coordinate with the ECC-Rater regarding the proper time to perform the QII inspection prior to wallboard being installed over the insulation. Thus, ensuring reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)9Biiib

**Purpose:** The specific purpose of this change is to allow Energy Commission staff to easily identify which ECC-Raters have been granted “Exemplary” status by the ECC-Provider.

**Necessity:** This revision is necessary to allow Energy Commission staff access to sufficient information to monitor quality assurance activities by the ECC-Provider. Thus, ensuring reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)9Biiic

**Purpose:** The specific purpose of this change is to require cost of data registry and quality assurance charged to the ECC-Rater and ECC-Rater Company be recorded by the ECC-Provider.



**Necessity:** This revision is necessary to allow Energy Commission staff to better evaluate the ECC marketplace in terms of costs to the construction industry as well as consumers. Staff will use this information to determine fair market prices and evaluate potential bias behavior in terms of pricing structures. Thus, ensuring reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)10B

**Purpose:** The specific purpose of this change is to clarify the accessibility to the ECC-Provider data registry required for the Energy Commission.

**Necessity:** This revision is necessary to avoid undue costs and difficulties in providing direct access to the ECC-Provider data registry to the Energy Commission by equating Energy Commission access to be comparable to that of the ECC-Provider's program management. This will avoid major issues related to development and maintenance level access for the ECC-Provider compared to the previously proposed requirement. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)10C

**Purpose:** The specific purpose of this change is to clarify the Energy Commission accessibility to the ECC-Provider data registry.

**Necessity:** This revision is necessary to avoid undue costs and difficulties in providing direct access to the ECC-Provider data registry by equating the Energy Commission access to be comparable to that of the ECC-Provider program management. This will allow the ECC-Provider to avoid major issues related to development and maintenance level access as previously proposed. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)10D

**Purpose:** The specific purpose of this change is to require that the ECC-Provider data registry be searchable by the Energy Commission by calendar year or code cycle.

**Necessity:** This revision is necessary to facilitate construction of competent search results across code cycles without needing complex and costly search features to be developed. This change will not hamper Energy Commission access to the ECC-Provider data registry. Thus, ensuring reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)11A

**Purpose:** The specific purpose of this change is to clarify that Energy Commission inquiries shall be limited to the purposes of code compliance and assessment of the ECC program.

**Necessity:** This revision is necessary to prevent unfocused costly inquiry requests from the Energy Commission regarding the ECC-Provider data registry and quality assurance database. The Energy Commission will have at regular intervals full and detailed reporting of the data registries, as well as the quality assurance databases, and can use these resources for more in-depth analysis, rather than unnecessarily burdening the ECC-Provider. Thus, ensuring reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(d)11G

**Purpose:** The specific purpose of the changes made, including all subsections within, are to simplify the ECC-Rater Company Annual Report requirement for the ECC-Provider to include only the current ECC-Provider pricing assigned to each ECC-Rater Company and Independent ECC-Rater and allow that information to be treated as confidential by the Energy Commission for at least five years upon submission.

**Necessity:** The proposed change is reasonably necessary to protect confidential information from ECC-Rater Companies concerning pricing and price structuring for field verification and diagnostic testing services. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(d)12A

**Purpose:** The specific purpose of this change is to clarify that Energy Commission inquiries should be limited to the purposes of code compliance and assessment of the ECC program.

**Necessity:** This revision is necessary to prevent unfocused costly inquiry requests from the Energy Commission regarding the ECC-Provider data registry and quality assurance database. The Energy Commission will have at regular intervals full and detailed reporting of the data registries, as well as the quality assurance databases, and can use these resources for more in-depth analysis, rather than unnecessarily burdening the ECC-Provider. Thus, ensuring reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 10-103.3(e)2G

**Purpose:** The specific purpose of this change is to clarify the name of the annual report required to be submitted by independent ECC-Raters as "the Annual Activity Report".

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California

Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section:** 10-103.3(e)2G

**Purpose:** The specific purpose of this change is to redirect the Annual Activity Report submitted by each Independent ECC-Rater to the Energy Commission rather than to the ECC-Provider.

**Necessity:** The proposed change is reasonably necessary to protect confidential information from ECC-Rater Companies concerning pricing and price structuring for field verification and diagnostic testing services consistent with the directives provided in California Public Resources Code Sections 2505.

**Section:** 10-103.3(e)2G

**Purpose:** The specific purpose of this change is to correct references to subsections that list the required information to be submitted by an independent ECC-Rater.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(f)1B

**Purpose:** The specific purpose of this change is to clarify what persons can act as the ECC-Rater certified principal in an ECC-Rater Company.

**Necessity:** This revision is necessary to clarify that a senior management employee may act as the certified principal for the ECC-Rate Company as an option to the company owner or shareholder. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(f)2A

**Purpose:** The specific purpose of this change is to remove the requirement for the ECC-Rater Company to list the specific ECC-Raters that it employs as this information is publicly disclosed by the ECC-Provider. This change removes duplication of reporting requirements between the ECC-Provider and ECC-Rater Company regarding employed ECC-Raters.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(f)2F

**Purpose:** The specific purpose of this change is to clarify the name of the annual report required to be submitted by ECC-Rater Companies as "the Annual Activity Report" and to make other minor language edits to improve clarity. ([ARCXIS: 24-BSTD-01, TN#257527](#)).

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-103.3(f)2F

**Purpose:** The specific purpose of this change is to redirect the Annual Activity Report to be submitted to the Energy Commission rather than the ECC-Provider, and to allow the Energy Commission to treat that report as confidential for at least 5 years upon submission. This change also provides a process for the ECC Provider to request confidential designation beyond the 5 years. ([ARCXIS: 24-BSTD-01, TN#257527](#)).

**Necessity:** The proposed change is reasonably necessary to protect confidential information from ECC-Rater Companies concerning pricing and price structuring for field verification and diagnostic testing services consistent with the directives provided in California Public Resources Code Sections 2505.

**Section:** 10-109(c)1B

**Purpose:** The specific purpose of this change is to update the reference for energy budget from "below" to more appropriately reference Title 24 Part 6, Sections 140.1(a), 150.1(b)1 and 170.1(a).

**Necessity:** The end use breakdowns for Efficiency LSC and Total LSC are specific for nonresidential, single-family residential and multifamily buildings. The description of the energy budget for each building type, including LSC end use breakdowns, is described in Sections 140.1(a), 150.1(b)1, and 170.1(a) respectively. Thus, replacing the word "below" with specific section references helps provide clarity. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-109(c)1B

**Purpose:** The specific purpose of this changes is to remove the description of the Efficiency LSC and Total LSC that was described under Long-term system cost (LSC).

**Necessity:** The description of the Efficiency LSC and the Total LSC vary by building type. The description of the Efficiency LSC and the Total LSC are instead included in Sections 140.1(a) for nonresidential buildings, 150.1(b)1 for single family buildings, and 170.1(a) for multifamily buildings. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California

Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-109(c)1D

**Purpose:** The specific purpose of this change is to revise the Alternative Calculation Method Reference Manual description to read “The Energy Commission shall publish a reference manual, Alternative Calculation Method Reference Manual, that specifies the standard design, documents the calculations and methods used by the compliance software to model building performance, calculate LSC and Source Energy, and determines building compliance with the Building Energy Efficiency Standards.”

**Necessity:** The revised language includes language based on the 2022 Alternative Calculation Method Reference Manual. This language clarifies that in addition to the standard design, calculations and methodologies used to model building performance in the code compliance software are included in the ACM Reference Manual. This included language ensures that a separate ACM Approval Manual does not need to be adopted in the 2025 code cycle. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-109(h)

**Purpose:** The specific purpose of this change is to replace the reference to the Alternative Calculation Method Approval Manual with a reference to Sections 10-109(c) and 10-116.

**Necessity:** The information in the ACM Approval was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. The reference was updated to reference the appropriate section as opposed to the ACM approval manuals that were previously not incorporated within Part 6. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-110 Title and (a)

**Purpose:** The specific purpose of this change is to add Section 10-116 to the list of applications reviewed through the procedures described in Section 10-110.

**Necessity:** The information in the ACM Approval was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. Section 10-116 specifically discusses the application process for third party compliance software. The Energy Commission’s application review process described in Section 10-110 is applicable to applications received under Section 10-116. Thus, a reference to section 10-116 needed to be added to section 10-110 to account for the new 10-116 section provided for in the 45-day language. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 10-111(a)1A

**Purpose:** The specific purpose of this change is to replace the word “Computer” to “Component”.

**Necessity:** This is a non-substantive edit that was incorporated into the final text by the resolution adopting the regulatory text. This is a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Table 100.0-A APPLICATION OF STANDARDS

**Purpose:** The specific purpose of this change is to add five rows to Table 100.0-A for "Demand Responsive (DR) Controls" to list the Energy Code sections for mandatory, prescriptive, performance, and additions & alterations requirements for demand responsive (DR) controls. A row was added for each of the five categories of demand responsive controls specified in Section 110.12: DR control thermostats, DR Zonal HVAC Controls, DR Lighting Controls, DR Electronic Message Center Control, and DR Controlled Receptacles.

**Necessity:** The addition of the information about "Demand Responsive (DR) Controls" to Table 100.0-A is necessary to guide users on the demand responsive control requirements. This information was not listed in Table 100.0-A of the 2022 Energy Code thus needed to be updated for this 2025 cycle. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Table 100.0-A APPLICATION OF STANDARDS

**Purpose:** The specific purpose of this change is to add multifamily building section references to the applicable “Signs” row requirements in Table 100.0-A. Specifically, the “Signs” requirements under Mandatory, Prescriptive, and Additions/Alterations are Sections 160.5(d), 170.2(e) 7 and 180.2(b)4Bvi, respectively.

**Necessity:** The addition of the multifamily requirements to the Signs sections is necessary to guide users on these requirements. This information was not listed in Table 100.0-A of the 2022 Energy Code thus needed to be updated for this 2025 cycle. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – AHRI 210/240

**Purpose:** The specific purpose of this change is to update the definition of AHRI 210/240 to reference the 2023 version of the document.

**Necessity:** The AHRI 210/240 testing procedures are referenced in Section 110.2 regarding minimum space conditioning equipment efficiency. The revision to the definition references the most recent version of the document, which is already referenced in Appendix 1-A of the Energy Code. Additionally, “with Addenda 1” was no longer necessary

as it has been incorporated into the 2023 version. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – AHRI 1250

**Purpose:** The specific purpose of this change is to add the definition of AHRI 1250.

**Necessity:** This change is necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers can find and understand the technical meaning of specific terms relating to building design and construction. The AHRI 1250 testing procedures are referenced in Section 120.6 regarding refrigerated warehouse evaporator specific efficiency requirements. The addition of this definition will easily point readers to the appropriate testing procedures. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Air-To-Water Heat Pump (AWHP)

**Purpose:** The specific purpose of these changes is to revise the “Air-To-Water Heat Pump (AWHP)” definition to clarify that AWHP can be used to meet space conditioning loads, domestic hot water heating loads, or both.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers can find and understand the technical meaning of specific terms relating to building design and construction. Further changes were required to this section to ensure that readers were aware that air-to-water heat pumps can also be used to do water heating. The proposed change is reasonably necessary to improve the clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Alternative Calculation Methods (ACM) Approval Manual

**Purpose:** The specific purpose of this change is to delete the definition of the Alternative Calculation Methods (ACM) Approval Manual.

**Necessity:** The information in the ACM Approval was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. A definition was no longer needed for the ACM Approval Manual. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – BESS Ready Interconnection Equipment

**Purpose:** The specific purpose of this change is to include “or switchboard” in the definition of “BESS Ready Interconnection Equipment”.

**Necessity:** The proposed change is reasonably necessary to provide a clear and unambiguous understanding of the technical meaning of this term. The National Electrical Code (NEC) Article 408 differentiates panelboards and switchboards. Switchboards are free standing, with amperage up to 6000 Amps, and, having UL 891 as their safety standard, while panelboards are NOT free-standing, having UL 67 as their safety standard, with amperage up to 1200A. The addition of “or switchboard” is important because electrical distribution equipment includes both panelboards and switchboards. The proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) Definition – BESS Ready Panelboard

**Purpose:** The specific purpose of this change is to include “or switchboard” in the title and definition of “BESS Ready Panelboard”.

**Necessity:** The proposed change is reasonably necessary to provide a clear and unambiguous understanding of the technical meaning of this term. The National Electrical Code (NEC) Article 408 differentiates panelboards and switchboards. Switchboards are free standing, with amperage up to 6000 Amps, and, having UL 891 as their safety standard, while panelboards are NOT free-standing, having UL 67 as their safety standard, with amperage up to 1200A. The addition of “or switchboard” is important because electrical distribution equipment includes both panelboards and switchboards. The proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) Definition – Compartmentalization

**Purpose:** The specific purpose of this change is to add the definition “Compartmentalization” to the Energy Code.

**Necessity:** Additional compartmentalization requirements have been added and are now referenced in the 2025 Energy Code. Adding a definition for “Compartmentalization” is therefore reasonably necessary to provide a clear and unambiguous understanding of the technical meaning of this term as used and intended for the 2025 Energy Code. This change thus improves the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Domestic Hot Water System Appurtenance

**Purpose:** The specific purpose of this change is to remove “pipe supports and hangers” from the definition of domestic hot water system appurtenance.

**Necessity:** This change is reasonably necessary to align with the California Plumbing Code definition for plumbing appurtenance. Pipe hangers and supports are not installed in line with piping. Additionally, pipe insulation requirements for pipe supports and hangers are prescribed independently from requirements for domestic hot water system appurtenances. The proposed change is reasonably necessary to ensure and improve the



general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Energy Efficiency Ratio 2 (EER2)

**Purpose:** The purpose of this change is to update language in this definition that is consistent with federal regulations and clarifies the term’s application to residential air conditioners as well as heat pumps.

**Necessity:** The proposed change is reasonably necessary to provide a clear and unambiguous understanding of the technical meaning of this term. This definition aligns with the federal definition in 10 CFR 430 Subpart B Appendix M1 and clarifies that the definition applies to residential air conditioners and heat pumps. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Executive Director

**Purpose:** The specific purpose of this change is to add the definition of “Executive Director” to the Energy Code.

**Necessity:** This change is necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers can find and understand the technical meaning of specific terms relating to building design and construction. The addition of the definition of “Executive Director” to the Energy Code is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 100.1(b) Definition – IES LM-79

**Purpose:** The specific purpose of this change is to remove the reference to the version of the Standard from the defined term in the definition section, Section 100.1. Specifically, the term "IES LM-79" replaced “IES LM-79-19”.

**Necessity:** Shortening the term to “IES LM-79” is necessary to ensure clear and unambiguous meaning of this technical term used in the 2025 Energy Code. "IES LM-79" is used throughout the code as a shorthand description for ANSI/IES LM-79-19. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Lighting-Automatic Daylight Control

**Purpose:** The specific purpose of this change is to delete the defined term “Automatic Daylight Control”.

**Necessity:** The deleted term is no longer used in Section 130.1(d) and Section 160.5(b)4D. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California

Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Lighting-Daylight Responsive Control

**Purpose:** The specific purpose of this change is to add a defined term “Daylight Responsive Control”.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers can find and understand the technical meaning of specific terms relating to building design and construction. The new defined term “Daylight Responsive Control” replaces the previous term “Automatic Daylighting Controls” in Section 130.1(d) and Section 160.5(b)4D. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 100.1(b) Definition – Lighting-Multilevel Lighting Control

**Purpose:** The specific purpose of this change is to revise the definition of “Multilevel Lighting Control”. Specifically, replacing the word "level" with "intensity" and deleting the words "across multiple levels."

**Necessity:** The revision of the wording is necessary to improve clarity. It is the “intensity” (commonly referred as brightness or luminous intensity) of the lighting level that is being adjusted, not the lighting output characteristics of correlated color temperature (CCT).

The deletion of “across multiple levels” is necessary to avoid conflicts with the multilevel lighting control requirements of Sections 130.1(b) and 160.5(b)4B as those sections specify the mandated performance requirements of the lighting controls. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 100.1(b) Definition – Programming Library

**Purpose:** The specific purpose of this change removes this definition from lighting definitions to its appropriate location further down the listed definitions.

**Necessity:** This change was needed to correct a mistake from the previous code cycle that included this definition in the lighting section. For additional information on this change please see entry where it was moved to below. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Long-Term System Cost (LSC)

**Purpose:** The purpose of this change is to update the definition for “Long-Term System Cost (LSC)” to align with the definition used in the Energy Code.

**Necessity:** The revision is reasonably necessary to maintain the consistency with the updated term used in Section 100.1(b) of the Energy Code. The changes improve the

general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Modeling Assumptions

**Purpose:** The specific purpose of this change is to replace the reference to the Alternative Calculation Method Approval Manual with a reference to Sections 10-109(c) and 10-116.

**Necessity:** The information in the ACM Approval was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. The reference was updated to the appropriate section where the ACM has been incorporated. The proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Multiple Zone System

**Purpose:** The specific purpose of this change is to add an alternative term, “multi-zone system”, to revise the definition from “an air distribution” to “a space conditioning” system, and to revise “supplies air to” to “conditions” to clarify the applicability of the term.

**Necessity:** These revisions are necessary to clarify that the definition applies to systems that provide thermal space heating and cooling conditions in more than one space conditioning zone. This change clarifies that a multiple zone system is not limited to the air distribution system alone. This change will ensure a more accurate and comprehensive understanding of the systems involved. The proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) – NEEA Advanced Water Heater Specification definition

**Specific Purpose:** The purpose of this change is to update the referenced version of the NEEA Advanced Water Heater Specification to version 8.1, and to include the updated effective date of this version.

**Necessity:** These changes are necessary to align with the latest version of the NEEA Advanced Water Heater Specification and replaced outdated information from the 2022 Energy Code. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Nonresidential Building Occupancy Types

**Purpose:** The specific purpose of this change to remove the word “Occupancy” from the “Nonresidential Building Occupancy Types” definition.

**Necessity:** The change is necessary because the building types referenced and used in Part 6 are not consistent with the occupancy groups as defined in Part 2 of the Building Code. Making this clarification seeks to resolve any confusion between references in Part 2

and those that apply and are referenced in Part 6. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Nonresidential Building Types

**Purpose:** The specific purpose of this change is to remove the preliminary introduction previously provided in the “Nonresidential Building Types” definitions. Additionally, building floor area percentage thresholds were also removed.

**Necessity:** The change is necessary as the previously including this text was confusing and redundant. is because these building types are provided in both the “Complete Building Method” of Lighting section 140.6(c)1 and in the PV and Battery prescriptive requirements of sections 140.10 and 170.2. Additionally, including a building floor area percentage threshold in the introductory definition was confusing stakeholders as to what specific standards the percentages applied to. These percentage thresholds are now instead addressed in respective sections where they apply. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Nonresidential Building Types - Events & Exhibits Building

**Purpose:** The specific purpose of removing “in which 80 percent of the floor area” from the “Nonresidential building types-Events & Exhibits” definition in Section 100.1 is to avoid redundancy with the 80 percent threshold that occurs in the corresponding PV sections 140.10 and 170.2.

**Necessity:** Including the 80 percent threshold in both the nonresidential building type definition and PV requirement sections was confusing for stakeholders. These percentages are now instead addressed in respective sections where they specifically apply. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Nonresidential Building Types - Religious Worship Building

**Purpose:** The specific purpose of this change is to amend the proposed definition for Religious Worship Building to remove the “80% of the building floor area”.

**Necessity:** Including the 80 percent threshold in both the nonresidential building type definition and PV requirement sections was confusing for stakeholders. These percentages are now instead addressed in respective sections where they specifically apply. This change also avoids potential conflicts with lighting sections elsewhere in the Energy Code that use 90% in the complete building method The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Nonresidential Building Types - Sports & Recreation Building

**Purpose:** The specific purpose of this change is to amend the proposed definition for Sports & Recreation Building to remove the “80% of the building floor area”.

**Necessity:** Including the 80 percent threshold in both the nonresidential building type definition and PV requirement sections was confusing stakeholders. These percentages are now instead addressed in respective sections where they specifically apply. This change also avoids potential conflicts with lighting sections elsewhere in the Energy Code that use 90% in the complete building method. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Nonresidential Building Types - Warehouse Building

**Purpose:** The specific purpose of adding the “Warehouse Building” definition is to increase the specificity of building types used in Tables 140.10-A, 140.10-B, 170.2-U and 170.2-V.

**Necessity:** The proposed change clarifies the scope of the requirements in Tables 140.10-A, 140.10-B, 170.2-U and 170.2-V and is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. Additionally, including warehouse building in these PV standards ensures reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) Definition OpenADR 3.0, Baseline Profile

**Purpose:** The specific purpose of this change is to add the definition for “OpenADR 3.0, Baseline Profile”.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers can find and understand the technical meaning of specific terms relating to building design and construction. In Sections 110.12(a)1A and Section 110.12(a)1B, the Baseline Profile OpenADR 3.0 was added as a new option for meeting demand response control requirements in the 2025 Energy Code. The definition for Baseline Profile OpenADR 3.0 directs users to use the baseline profile described in the 2023 OpenADR 3.0 specifications made by the OpenADR Alliance. The change clarifies the scope of the requirements in Section 110.12(a)1A and Section 110.12(a)1B and is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Programming Library

**Purpose:** The specific purpose of this change is to add a definition for “programming library” as it relates to ASHRAE Guideline 36 in the proper order in section 100.1(b)

**Necessity:** This definition will ensure consistency in the reference, development, and use of programming libraries within the context of ASHRAE Guideline 36. The change clarifies the requirements in Section 140.4 and is reasonably necessary to ensure and improve the

general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Proposed Design Building

**Purpose:** The specific purpose of this change is to replace the reference to the Alternative Calculation Method Approval Manual with a reference to Sections 10-109(c) and 10-116.

**Necessity:** The information in the ACM Approval was incorporated in Section 10-109 and 10-116 this code cycle. A separate ACM Approval Manual document was thus not adopted for 2025. The reference was updated to reference the appropriate section where the ACM Approval Manuals have been incorporated into. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Reference Appendices

**Purpose:** The purpose of this change is to update the definition “Reference Appendices” to remove reference to the ACM Approval Manual.

**Necessity:** The requirements typically included in a separate ACM Approval Manual were moved into Section 10-109 and 10-116 of the 2025 Energy Code. The reference to ACM Approval Manual is no longer necessary. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Self-utilization credit

**Purpose:** The following definition for self-utilization credit is added to the list of defined terms. “Self-utilization Credit is the limited Efficiency LSC energy budget compliance credit available for combined PV and battery energy storage systems for single-family, as specified by the Residential ACM Reference Manual, and low-rise multifamily, as specified by the Nonresidential and Multifamily ACM Reference Manual.”

**Necessity:** Self-utilization credit is a credit that is used in compliance modeling to determine the Efficiency LSC. Adding the definition for this term clarifies what is considered in compliance software when JA12 compliant energy storage is added for single family and low-rise multifamily buildings. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Simultaneous Mechanical Heat Recovery

**Purpose:** The specific purpose of adding a definition for “Simultaneous Mechanical Heat Recovery” is to provide a clear and unambiguous definitions for this technical term as provided in Section 140.4.

**Necessity:** This term was added in this 2025 code cycle thus providing readers with a definition was reasonably necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers can find and understand the technical meaning of specific terms relating to building design and construction.

**Section:** 100.1(b) Definition – Standard Design Building

**Purpose:** The specific purpose of this change is to replace the reference to the Alternative Calculation Method Approval Manual with a reference to Sections 10-109(c) and 10-116.

**Necessity:** The information in the ACM Approval was incorporated in Section 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. The reference was updated to reference the appropriate section where the ACM Approval Manuals have been incorporated. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) Definition – Virtual End Node (VEN)

**Purpose:** The specific purpose of this change is to update the definition for “virtual end node (VEN)” to include a reference to the Baseline Profile OpenADR 3.0.

**Necessity:** Baseline Profile OpenADR 3.0 was added to Sections 110.12(a)1A and 110.12(a)1B for the 2025 code cycle as an option for meeting demand response control requirements. The definition for virtual end node was also updated to ensure that Baseline Profile OpenADR 3.0 was added to the list of signals that a virtual end node would accept. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(a)

**Purpose:** The purpose of this change is to add the symbol  $\geq$  for greater than or equal to properly indicate the temperature settings for the set standards and to replace the British pound (£) symbol with the less than to or equal to ( $\leq$ ) sign used to set the standard.

**Necessity:** This change corrects a typographical error. It is reasonably necessary to ensure and improve general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(b) Controls for heat pumps with supplementary heaters –

**Purpose:** The specific purpose of this change is to remove “for non-residential and multifamily buildings and “electric resistance,” from the section title. other changes make several sentence structure and word choice revisions that add clarity to the language. Additionally, Sections 150.0(h)7 and 150.0(i)2 has been added to the list of sections that contain heat pump supplementary heating requirements for single-family residential buildings.

**Necessity:** The proposed change is reasonably necessary to ensure that all types of supplementary heating, including gas, have controls applied to them, and to ensure Sections 150.0(h)7 and 150.0(i)2 are referenced for controls for single-family heat pump with supplementary heaters. This change is also reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(b)2

**Purpose:** The specific purpose of this change is to replace the phrase “compression heating” with the phrase “heat pump heating”.

**Necessity:** This change is necessary to clarify that the section specifically pertains to heat pumps with supplementary heaters. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(b), Exception 3

**Purpose:** The specific purpose of this change is to remove Exception 3 to Section 110.2(b).

**Necessity:** This revision is necessary to improve clarity and ensure consistency in the language related to heat pump controls in single-family residential buildings, generally section 150.0. The intent of this exception was effectively preserved by Exception 1 to 150.0(h)7 thus it would have been redundant to preserve in both places. The proposed change is also reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(d)

**Purpose:** The specific purpose of this change is to clarify the sizing limitation requirements for intermittent or interrupted ignition devices in gas-fired and oil-fired forced-air furnaces.

**Necessity:** This revision is necessary to ensure the proper operation of gas-fired and oil-fired forced-air furnaces with a capacity of 225,000 Btu/hr or greater. The “≥” symbols before “225,000 Btu/hr” in two sentences were left out of the 2022 Energy Code due to a typographical error. These edits rectify that error. The proposed change is also reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e)

**Purpose:** The specific purpose of this change is to update “open and closed cooling tower” to “open and closed-circuit cooling tower”.

**Necessity:** This revision was made to align the use of “open and closed-circuit cooling towers” with the same references elsewhere in the Energy Code where we were already



including “circuit” when referring to open and closed cooling towers. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e)2

**Purpose:** The specific purpose of this change is to update the term “cycles of concentration needed” to “cycles of concentration achievable” and to update the term “maximum cycles of concentration” to “maximum achievable cycles of concentration.

**Necessity:** Section 110.2(e)2 provides the requirements for maximum achievable cycles of concentration in open and closed-circuit cooling towers. To improve clarity in the section, terms were updated to reference achievable cycles of concentration and maximum achievable cycles of concentration. This will ensure that readers are not confused by changing the terminology in the description to match the terminology used in the title. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e)2

**Purpose:** The specific purpose of this change is to update the term “local water supply” to “local water supply conditions.”

**Necessity:** Section 110.2(e)2 provides requirements for maximum achievable cycles of concentration in open and closed-circuit cooling towers. These requirements are based on the quality of the local water supply. To ensure that the local water supply conditions are used to calculate the maximum achievable cycles of concentration, the term “conditions” was added. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e)2I

**Purpose:** The specific purpose of this change is to reformat the calculation used to determine the Langelier Saturation Index to improve clarity.

**Necessity:** Section 110.2(e)2 provides the calculations for maximum achievable cycles of concentration in open and closed-circuit cooling towers based on the local water supply conditions. The calculation for the Langelier Saturation Index is more complex than the other calculations used. This section was revised to improve readability and correct errors in the Langelier Saturation Index equation. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-A-1 Recirculating Water Properties

**Purpose:** The specific purpose of this change is to revise “CaCO<sub>2</sub>” to “CaCO<sub>3</sub>”.

**Necessity:** The previous language used CaCO<sub>23</sub> in this table but was a typo and needs to be corrected to CaCO<sub>3</sub> for this code cycle. The corrected term matches IECC requirements for alkalinity parameters. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-B Heat Pumps, Minimum Efficiency Requirements

**Purpose:** Air Cooled (Heating Mode) Split System and Single Package  $\geq 240,000$  Btu/h and  $< 760,000$  Btu/h, updated to reference the Federal Minimum requirements.

**Necessity:** This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. The minimum efficiency requirements for this equipment are federally regulated. To remain consistent with other tables in Section 110.2, this item was updated to reference Federal Minimum rather than to duplicate the federally adopted value. The proposed change is reasonably necessary to comply with federal law and ensure the internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-F Electrically Operated Variable Refrigerant Flow (VRF) Air Conditioners Minimum Efficiency Requirements

**Purpose:** The specific purpose of this change is, for equipment type VRF Air Conditioners, Air Cooled  $< 65,000$  Btu/h, to make non-substantive errata changes to add the words “Federal Minimum” in the Minimum Efficiency column, to update the calendar dates in the Test Procedure column to reference AHRI 1230 before 1/1/2023, and add AHRI 210/240 on or after 1/1/2023.

**Necessity:** The minimum efficiency requirements for this equipment are different before and after 1/1/2023. The Test Procedure required before and after 1/1/2023 is also different. The proposed change clarifies the applicable test procedure. The “Federal Minimum” edit is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-G Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps – Minimum Efficiency Requirements

**Purpose:** The specific purpose of this change is, for equipment type Variable Refrigerant Flow (VRF) Air Cooled, (cooling mode)  $< 65,000$  Btu/h, to make non-substantive errata changes to replace specified SEER2 efficiency with “Federal Minimum” and to update the Test Procedure to reference AHRI 1230 before 1/1/2023, and AHRI 210/240 on or after 1/1/2023.

**Necessity:** The minimum efficiency requirements for this equipment are different before and after 1/1/2023. The Test Procedure required before and after 1/1/2023 is also different.

The proposed change clarifies the applicable test procedure. The “Federal Minimum” edit is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-G Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps – Minimum Efficiency Requirements

**Purpose:** The specific purpose of these changes is, for equipment type Variable Refrigerant Flow (VRF) Water source (cooling mode) “<65,000 btu/h”, “>65,000 Btu/h and <135,000 Btu/h”, “>135,000 Btu/h and <240,000 Btu/h,” and “>240,000 Btu/h”, to make non-substantive errata changes to replace specified IEER efficiency with “Federal Minimum.” Similarly, to reinstate the EER efficiencies that were previously deleted, and remove “Federal Minimum” from EER efficiencies.

**Necessity:** The Department of Energy (DOE) began regulating VRF Water source efficiency using the IEER metric, which was not accounted for in the original 2025 Energy Code draft language. Revising the language will properly indicate that the DOE has minimum IEER efficiency requirements, and identify EER minimum efficiency requirements in Table 110.2-G. This will align the California Energy Code with DOE requirements. The “Federal Minimum” edit is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. The proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-G Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps – Minimum Efficiency Requirements

**Purpose:** The specific purpose of these changes is, for equipment type VRF Air Cooled (heating mode) <65,000 Btu/h (cooling capacity), to make non-substantive errata changes to update the Test Procedure column to reference AHRI 1230 before 1/1/2025, and AHRI 210/240 on or after 1/1/2025, and update the Minimum Efficiency column to reflect the new date of 1/1/2025.

**Necessity:** The minimum efficiency requirements for this equipment is different before and after 1/1/2025. The Test Procedure required before and after 1/1/2025 is also different. The proposed change clarifies the applicable test procedure. The updates to the effective date are non-substantive edits that were incorporated into the final text via the resolution adopting the regulatory text. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-G Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps – Minimum Efficiency Requirements

**Purpose:** The specific purpose of this change is, for equipment type VRF Air Cooled (heating mode)  $\geq 135,000$  Btu/h (cooling capacity), VRF Multi-split system 17F db/15F wb outdoor air, to remove “Federal Minimum” because the Department of Energy does not set a federal minimum efficiency requirements for this equipment type. The minimum efficiency of 2.05 COP from the 2022 Energy Code is reestablished to align with ASHRAE 90.1-2022’s minimum efficiency requirements at 17F db/15F wb outdoor air for electrically operated variable-refrigerant-flow air conditioners.

**Necessity:** The Department of Energy does not regulate VRF Air Cooled equipment at the temperature range of 17F db/15F wb outdoor air. The proposed change will properly indicate that the DOE does not provide a minimum COP efficiency and properly reestablishes the COP minimum efficiency requirement in Table 110.2-G to align with the requirements of ASHRAE 90.1-2022. This change aligns the California Energy Code with ASHRAE 90.1, which is the Department of Energy’s reference standard for nonresidential building codes. The proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-G Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps – Minimum Efficiency Requirements

**Purpose:** The specific purpose of this change is to remove “Footnote to Table 110.2H.”

**Necessity:** The existing language incorrectly references Table 110.2H instead of Table 110.2G. This entire reference was removed to follow the footnote style of other tables included in Section 110.2 which do not reference the table title. This will result in consistency between tables in Section 110.2. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.2(e), Table 110.2-H DX-DOAS Units, Single-Package and Remote Condenser – Minimum Efficiency Requirements

**Purpose:** The specific purpose of this change is to remove “Footnote to Table 110.2H.”

**Necessity:** This reference was removed to follow the footnote style of other tables included in Section 110.2 which do not reference the table title. This will result in consistency between tables in Section 110.2. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7

**Purpose:** The specific purpose of this change is to add the term “Air-Source” to the heading of the section.

**Necessity:** This change is necessary to clearly state that the requirements of Section 110.3(c)7 are applicable to air-source heat pump water heaters by identifying air-source in

the heading as opposed to only referencing it in subsection A. This should make it clear that air source is applicable for all of the 110.3(c)7 subsections. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7A

**Purpose:** The specific purpose of this change is to remove the term “air-Source” from this section.

**Necessity:** This change is necessary to clearly state that the requirements of Section 110.3(c)7 is applicable to air-source heat pump water heaters by identifying air-source in the heading and not separately in sub section A. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7A

**Purpose:** The specific purpose of this change is to clarify that the backup heat requirement in this section can be met by a heater that is either internal or external to the heat pump water heater. Also, other minor clarifications are made by changing “cutout” temperature to “cut-off” temperature, and by adding the word “heating” to Winter Median of Extremes.

**Necessity:** These changes are necessary to remove ambiguity and clearly state the intent of the backup heat requirement, which is to ensure the proper installation and operation of the products to capture the intended energy savings. These changes make it clear that built-in resistance heat is considered backup heat. These changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7B1

**Purpose:** The specific purpose of this change is to add a manufacturer-provided ventilation option to meet the mandatory air source heat pump water heater ventilation requirement, if the option meets or exceeds the performance of the ventilation requirements of Sections 110.3(c)7B2 through 110.3(c)7B4. A similar manufacturer-provided option was previously located in Section 110.3(c)7B4, which has been removed. Subsequent sections are renumbered.

**Necessity:** This change addresses stakeholder feedback that it is necessary to identify a manufacturer-provided ventilation option as the primary ventilation method. Some manufacturers have more stringent requirements for their heat pump water heaters than the ventilation requirements in Sections 110.3(c)7B2 through 110.3(c)7B4. Therefore, the Energy Code requirements should only be used when manufacturer’s installation instructions are not available. This proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 110.3(c)7B2

**Purpose:** The specific purpose of this change is to update the installation space volume requirement to “not less than the greater of 100 cubic feet kBtu per hour of compressor capacity”, instead of “equal to the greater of 100 cubic feet kBtu per hour of compressor capacity”.

**Necessity:** This change is necessary to align with the intent of the requirement, which is a minimum space volume based on compressor capacity. This change will allow space volume equal to or greater than the minimum space volume required, and will provide designers with additional flexibility for space planning. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7B3

**Specific Purpose:** The specific purpose of these changes is to add “the” in front of “installation space”.

**Necessity:** These changes are necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7B3i

**Purpose:** The specific purpose of this change is to update the reference to Section 110.3(c)7B2 as a result of the addition that replaced the previous Section 110.3(c)7B1.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7B3ii

**Purpose:** The specific purpose of this change is to edit the heat pump water heater ventilation requirements for permanent openings, and to clarify that “NFA” means “Net Free Area”.

**Necessity:** This proposed change addresses stakeholder feedback provided during the rulemaking process concerning interpretations that were not intended by staff as presented in the 45-day Express Terms. The new changes eliminate those issues. It is necessary to remove ambiguity and to clarify the permanent openings requirement related to heat pump water heater ventilation. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7B4i

**Purpose:** The specific purpose of this change is to update the reference to Section 110.3(c)7B2 as a result of the addition that replaced the previous Section 110.3(c)7B1.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7B4 before renumbering (Removed)

**Purpose:** The specific purpose of this change is to remove the manufacturer-provided ventilation option for the mandatory air source heat pump water heater ventilation requirement in order to relocate it. This option has been relocated to Section 110.3(c)7B1.

**Necessity:** This proposed change eliminated redundancy in the Code and is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.3(c)7B Note

**Purpose:** The specific purpose of this change is to add a non-regulatory note highlighting potential issues with ducting only the inlet or only the outlet vent of a heat pump water heater across the pressure boundary.

**Necessity:** During the rule making process stakeholders expressed concern about allowing ducting for HPWH ventilation across the pressure boundary. Staff conducted their own independent analysis and agreed with stakeholders. Ducting only the HPWH exhaust vent across the pressure boundary can cause issues in homes with exhaust-only whole-home ventilation systems. Since exhaust-only ducting of HPWHs is frequently used, the note provides some non-binding guidance for designers to consider the impact on exhaust-only whole-home ventilation systems. This proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 110.4(b)3

**Purpose:** The specific purpose of this change is to clarify that the pool cover requirements are only applicable to outdoor pools and/or spas with electric or gas heating equipment.

**Necessity:** This change is necessary to remove ambiguity and clearly state the intent of the pool cover requirement. At the time of this rulemaking the only other heating option is a solar pool heating system. In that case, not having a pool cover does not result in a significant change of energy use. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.4(c)

**Purpose:** The specific purpose of this change is to revise the sizing requirement references to include new options specified in Sections 110.4(c)4 and 110.4(c)5.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.4(c)2

**Purpose:** The specific purpose of this change is to remove the reference to the control requirements for a heat pump pool heater in Section 110.2(b). This requirement has been duplicated in the new Section 110.4(d).

**Necessity:** This change is necessary to resolve conflicts with control requirements in Section 110.2(b) that are not applicable to heat pump pool heaters. The requirements in the new Section 110.4(d) preserve the original intent of the requirement but are provided only as they apply to heat pump pool heaters rather than just generally to heat pump heaters as provided in 110.2(b). The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.4(c)2

**Purpose:** The specific purpose of this change is to change the description of “backup heater” to “supplementary heater”.

**Necessity:** This change is necessary to align with terminology used in Section 110.2. A backup source might be a source that is only available when the primary system is broken. Supplementary heat is used when the heat pump cannot meet the total heating load and is a more precise description that aligns with the intent of this requirement. This proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.4(c)4

**Purpose:** The specific purpose of this change is to add a heating source sizing option for a pool heating system that is a combination of a solar pool heating system and a heat pump pool heater, without additional supplementary heater.

**Necessity:** This new option addresses stakeholder feedback requesting additional flexibility for designers to meet the requirements of Section 110.4(c). This proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 110.4(c)5

**Purpose:** The specific purpose of this change is to add an option for an alternative pool heating system that is approved by the Executive Director if shown to be energy equivalent with any of the other systems specified in Section 110.4(c).



**Necessity:** This change is necessary to provide additional flexibility for designers to meet the requirements of Section 110.4(c). This proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** Exception 1 to Section 110.4(c)

**Purpose:** The specific purpose of this change is to add the applicable Title 20 reference for portable electric spas.

**Necessity:** The appliance efficiency standards are not under Title 24 but rather Title 20, thus a specific citation will make it easier for readers to make any needed cross references. This proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Exception 5 to Section 110.4(c)

**Purpose:** The specific purpose of this change is to specify that inadequate Solar Access Roof Area (SARA) is a qualification for the exception.

**Necessity:** This change is necessary to remove ambiguity and clearly state the intent of the exception regarding limited available roof space. Specifically, clarifying “roof access” to “solar roof access area (SARA) as is used elsewhere in the Energy Code. This proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.4(d)

**Purpose:** The specific purpose of this change is to add a new section for control requirements specifically applicable to heat pump pool heaters with supplementary heating. These requirements are similar to the requirements in Section 110.2(b), previously referenced by Section 110.4(c)2 in the 45-day Express Terms.

**Necessity:** This change is necessary to resolve conflicts with control requirements in Section 110.2(b), applicable to space conditioners, that are not applicable to heat pump pool heaters. The requirements in the new Section 110.4(d) preserve the original intent of the 110.2(b) requirement. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 110.9(b)2

**Purpose:** The specific purpose of this change is to rename the previous term from "daylighting controls" to "daylight responsive controls".

**Necessity:** The term “daylight responsive controls” replaces the previous terms “automatic daylighting controls” and “daylighting controls,” and is now being used consistently in Sections 130.1(d) and 160.5(b)4D. Using “daylight responsive controls” aligns with the terms used by IECC and in general is a more appropriate term to use for the associated

standards. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 110.12(a)1A

**Purpose:** The specific purpose of this change is to add an option for certified demand responsive controls to be a certified Baseline Profile OpenADR 3.0 Virtual End Node.

**Necessity:** The new Baseline Profile OpenADR 3.0 certification is expected to be used widely by the energy storage and renewable energy systems industries. Including OpenADR 3.0 as an option for meeting demand responsive controls ensures that manufacturers will be able to meet requirements in Section 110.12. Certification to OpenADR 3.0 is designed to be simpler while still providing the functionality needed to meet demand response needs. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 110.12(a)1B

**Purpose:** The specific purpose of this change is to change “by the manufacturer” to “to the Energy Commission” and add an option for demand responsive controls that is certified to the Energy Commission as being able to respond to a certified Baseline Profile OpenADR 3.0 Virtual End Node signal.

**Necessity:** The new Baseline Profile OpenADR 3.0 certification is expected to be used widely by the energy storage and renewable energy systems industries. Including the option to certify to the Energy Commission that demand responsive controls are capable of responding to a signal from a certified Baseline Profile OpenADR3.0 Virtual End Node ensures that manufacturers will be able to meet requirements in Section 110.12. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.1(c)1, Exception

**Purpose:** The specific purpose of this change is to add an exception to the air filtration requirements of Section 120.1(c)1 for evaporative coolers. This exception was mistakenly removed during the 2022 building code cycle when the multifamily section was created.

**Necessity:** This change is necessary to ensure that regulations will have clear unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.1(d)5A

**Purpose:** The specific purpose of this change is to remove examples of spaces where demand control ventilation (DCV) applies. The examples conflicted with Sections 130.1(c)5 and 6; which are prerequisites of 120.1(d)5A.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. Additionally, the proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.2

**Purpose:** The specific purpose of this change is to correctly reference all sections included in Section 120.2 through 120.2(l). The previous reference at the outset of this section only referenced through 120.2(k).

**Necessity:** This proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Table 120.1-A

**Purpose:** The specific purpose of this change is to correct a formatting error that removed “General Manufacturing (excludes heavy...)” category. This category was accidentally removed during formatting of the tables for the 15-day language. It was not a new category presented in this code cycle. The other changes include fixing typos under the occupant load density column for the occupancy types “shipping/receiving” and “sorting, packing, light assembly” from 5 to 2, and for occupancy types “auditorium seating area” and “places of religious worship” from 7 to 71.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear, correct, and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. As mentioned in the initial statement of reasons, these updated figures are aligned with the California Mechanical Code and consistent with rates provided in 120.1(c)3 this cycle. Additionally, the proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.5(a)19

**Purpose:** The specific purpose of this change is to add an acceptance test requirement for open and closed-circuit cooling tower conductivity controls and overflow alarms.

**Necessity:** Section 110.2(e) adds a new testing requirement for cooling towers. These requirements are further described in Reference Appendices, Nonresidential Appendices, NA7.5.18. It is necessary to include these testing requirements in Section 120.5 to indicate that these tests must be performed before an occupancy permit is granted. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or

unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.6

**Purpose:** The specific purpose of this change is to extend the section reference from Section 120.6(a) through Section 120.6(g) to Section 120.6(a) through 120.6(k).

**Necessity:** New mandatory requirements were added to Section 120.6, and this increased the number of subsections included in Section 120.6. This reference was updated to ensure that the public was aware of the additional mandatory requirements included through Section 120.6(k). These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.6

**Purpose:** The specific purpose of this change is to add a reference to Sections 110.2(a) and 120.3.

**Necessity:** New mandatory requirements were added to Section 120.3 and there are mandatory requirements in Section 110.2 that also apply to covered processes. These references were added to ensure that the public was aware of the mandatory requirements in these additional sections. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.6(a)3E – Table 120.6-A-2 Fan-Powered Evaporators – Minimum Specific Efficiency Requirements

**Purpose:** The specific purpose of this change is to correct the term “state” to “static” in Table 120.6-A-2 under the Rating Condition column. An errata change was also made to subscript the 2 in CO<sub>2</sub>.

**Necessity:** The term “state” is a typo as the rating conditions are based on water static pressure. Correcting this typo will improve the clarity of the specific efficiency requirements. The change to CO<sub>2</sub> is necessary as a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. This proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(a)4A, Exception 2

**Purpose:** The specific purpose of this change is to include the corrected section number, and to clarify that the exception applies to condensing units that are components of federally regulated walk-in coolers and walk-in freezers. Additionally, the detailed reference to the Energy Commission Appliance Efficiency regulation was deleted.

**Necessity:** The proposed change clarifies the equipment that is being excepted from the requirement, using terminology consistent with the Department of Energy requirements for appliance refrigeration equipment. The reference to the Energy Commission Appliance

Efficiency Regulations was generalized as the additional detail may not include newly adopted regulations. This change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(a)4B, Exception 1

**Purpose:** The specific purpose of this change is to clarify that the exception applies to condensing units that are components of federally regulated walk-in coolers and walk-in freezers. Additionally, the detailed reference to the Energy Commission Appliance Efficiency regulation was deleted.

**Necessity:** The proposed change clarifies the equipment that is being excepted from the requirement, using terminology consistent with the Department of Energy requirements for appliance refrigeration equipment. The reference to the Energy Commission Appliance Efficiency Regulations was generalized as the additional detail may not include newly adopted regulations. This change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(a)4C, Exception 2

**Purpose:** The specific purpose of this change is to include the corrected section number, and to clarify that the exception applies to condensing units that are components of federally regulated walk-in coolers and walk-in freezers. Additionally, the detailed reference to the Energy Commission Appliance Efficiency regulation was deleted.

**Necessity:** The proposed change clarifies the equipment that is being excepted from the requirement, using terminology consistent with the Department of Energy requirements for appliance refrigeration equipment. This change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(a)4G, Exception 2

**Purpose:** The specific purpose of this change is to include the corrected section number, and to clarify that the exception applies to condensing units that are components of federally regulated walk-in coolers and walk-in freezers. Additionally, the detailed reference to the Energy Commission Appliance Efficiency regulation was deleted.

**Necessity:** The proposed change clarifies the equipment that is being excepted from the requirement, using terminology consistent with the Department of Energy requirements for appliance refrigeration equipment. The reference to the Energy Commission Appliance Efficiency Regulations was generalized as the additional detail may not include newly adopted regulations. This change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California

Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(a)4H, Exception 2

**Purpose:** The specific purpose of this change is to include the corrected section number, and to clarify that the exception applies to condensing units that are components of federally regulated walk-in coolers and walk-in freezers. Additionally, the detailed reference to the Energy Commission Appliance Efficiency regulation was deleted.

**Necessity:** The proposed change clarifies the equipment that is being excepted from the requirement, using terminology consistent with the Department of Energy requirements for appliance refrigeration equipment. The reference to the Energy Commission Appliance Efficiency Regulations was generalized as the additional detail may not include newly adopted regulations. This change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(c)4

**Purpose:** The purpose of this change is to replace the British pound (£) symbol with the less than to or equal to ( $\leq$ ) sign used to set the standard.

**Necessity:** This change corrects a typographical error and is reasonably necessary to ensure and improve general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(k)1b

**Specific Purpose:** The specific purpose of this change is to remove the word “for” to correct an editing mistake, and to clarify that the requirement is for the minimum capacity of the electrical service panel.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. The proposed change is reasonably necessary to ensure and improve general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(k)2

**Specific Purpose:** The specific purpose of this change is to clarify that the requirement is for the electric service panel serving the kitchen, and not necessarily the main service panel. This clarification is relevant for installations where there is a subpanel serving the kitchen.

**Necessity:** These changes are reasonably necessary to ensure that the regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. Additionally, this proposed change is reasonably necessary to ensure and improve the general clarity and internal

consistency of the Energy Code as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.6(k), Exception 2

**Specific Purpose:** The specific purpose of this change is to add an exception for all electric kitchens Adding Exception 2 to Section 120.6(k) necessitated renumbering “Exception to Section 120.6(k)” to “Exception 1 to Section 120.6(k).”

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. This change clarifies that only kitchens designed with gas must follow the electric readiness requirements. Additionally, this proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 120.7(d), Exception

**Purpose:** The specific purpose of this change is to prevent conflict between the requirements of Title 24 part 6 and part 2 for Fenestration installed in a nonresidential building constructed in Fire Hazard Severity Zone or any Wildland-Urban Interface (WUI) Fire Area.

**Necessity:** This exception is necessary to prevent conflict between the requirements of Title 24 part 6 and part 2 when a building is constructed in Fire Hazard Severity Zone or any Wildland-Urban Interface (WUI) Fire Area consistent with California Public Resources Code sections 25213 and 25402.

**Section:** 120.7(e) and Exception 4

**Purpose:** The specific purpose of this change is to clarify that the requirements of Section 120.7(e) only apply to newly constructed buildings, and not to additions or alterations of existing buildings.

**Necessity:** This change is necessary to ensure that readers understand that the requirement referenced above only applies to newly constructed buildings, and to clarify that the requirement is not applicable to additions or alterations. This proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section:** 120.7(e), Exception 8

**Purpose:** The specific purpose of this change is to provide an exception for projects that have been submitted to the local building department prior to the effective date of the 2025 Energy Code.

**Necessity:** This change is reasonably necessary to ensure that projects that have been submitted prior to the effective date are not required to revise and resubmit their plans for approval. This proposed change is necessary to ensure reliable reductions in wasteful,

uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.10(a)2

**Purpose:** The specific purpose of this change is to change the reference from ANSI/AMCA 208 to the Department of Energy’s test procedures in Appendix A to Subpart J of Part 431 of 10 CFR.

**Necessity:** This change is reasonably necessary to ensure that there is alignment with updated state and federal regulations. This proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.1(a)

**Purpose:** The specific purpose of the changes is to delete the word “indoor” from the term “indoor space”, as well as to make a grammatical correction from “provide” to “be provided with”.

**Necessity:** The deletion of the word “indoor” is necessary as the requirement resides in the mandatory indoor lighting controls section and it is redundant to state that the controls apply to indoor spaces. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 130.1(a)2

**Purpose:** The specific purpose of this change is to remove the word “display” succeeding “status” and to add a word “the” preceding “status”.

**Necessity:** The change to modify the term “status display” is necessary to clarify that manual controls shall be located either where the controlled lighting or the status of the controlled lighting can be seen when operating the controls. The noun phrase “the status of the controlled lighting” is a more accurate term than “the status display” as the latter refers to a display device whereas “the status of the controlled lighting” refers to a device that shows the status of the controlled lighting and that the device may not be a display. The change is necessary to clarify that the requirement is about the feature that allows the users to be able to see the status of the controlled lighting. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 130.1(a), Exception

**Purpose:** The specific purpose of this change is to add "during a normal power failure " to the end of the sentence and to revise the beginning of the sentence to: "The egress lighting controls shall not be controllable by unauthorized personnel ..."

**Necessity:** The change to the Exception for egress lighting is necessary to clarify the conditions when the egress lighting control qualifies for the exception to Section 130.1(a) of



manual controls. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.1(b)

**Purpose:** The specific purpose of this change is to replace "provide" with "be provided" in the sentence.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 130.1(b), Exception 5

**Purpose:** The specific purpose of this change is to remove Exception 5 to Section 130.1(b).

**Necessity:** The removal of Exception 5 to Section 130.1(b) is necessary as an independent analysis by staff determined that it is technically feasible for classrooms to meet the multilevel lighting controls requirements specified in Section 130.1(b). The exception from meeting the multilevel lighting controls requirements for classrooms was introduced in the 2013 Code Development Cycle as it was not technically feasible at that time to require the same type and level of controls for classrooms as is required for other building space types covered under Section 130.1(b), see the 2013 ISOR.

CEC received input that LED luminaires are now widely available as light sources for general lighting applications and for classroom light sources, and these LED luminaires can meet the requirements of Section 130.1(b). This proposed change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section** 130.1(c)5

**Purpose:** The specific purpose of the change is to shorten the section heading by removing "are required for specified offices, multipurpose rooms, classrooms, conference rooms and restrooms," and converting existing text of "Occupant sensing controls" into a header for the subsection

**Necessity:** The change to shorten the section heading is necessary to improve this code language by removing redundancies as the standards already specify the location they apply to within this subsection. The proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** 130.1(c)5B

**Purpose:** The specific purpose of the change is to remove restrooms from multilevel lighting controls requirements.

**Necessity:** The removal of the text from Section 130.1(c)5 stating that restrooms are not required to have multilevel lighting controls is necessary to reduce redundancy in the code. Restrooms are already exempted from meeting the multilevel lighting controls requirements as stated in Section 130.1(b). The proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

#### **Section 130.1(c)6**

**Purpose:** The specific purpose of the change is to shorten the section heading by converting existing text of “Full or partial-OFF occupant sensing controls” into a header alone for the subsection instead of reading immediately into requirements. Other changes revise the remaining text succeeding the subsection header as follows: “For warehouse aisle ways, warehouse open areas, library book stack aisles, corridors, stairwells, offices greater than 250 square feet, parking garages, parking areas, loading areas, and unloading areas, the installed lighting shall meet the following requirements:”

**Necessity:** The proposed change to shorten the section heading and revise the text succeeding the section heading is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

#### Section 130.1(c)6Eiii.

**Purpose:** The specific purpose of this change is to replace "space" with "zone" in the term "separately controlled space".

**Necessity:** The proposed change is necessary to align the language in this requirement with use of the term “control zone” in Section 130.1(c)6E. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

#### Section 130.1(c)8.

**Purpose:** The specific purpose of this change is to add the word “controls”.

**Necessity:** The change clarifies that these requirements apply specifically to "controls". The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

#### **Section 130.1(c)8 Exception**

**Purpose:** The specific purpose of the change is to update the referenced section to Section 150.0(k)1A from Table 150.0-A, and to make other editorial changes.

**Necessity:** The update to Section 150.0(k)1A is necessary to include a valid reference as Table 150.0-A has been deleted from the Energy Code and section 150.0(k)1A is the appropriate section that provides the information previously held by the Table 150.0-A reference. . The proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California

Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.1(d)2Biii, Exception

**Purpose:** The specific purpose of this change is to add the word "segment" succeeding "the luminaire".

**Necessity:** The addition of the word "segment" is necessary to clarify that the luminaire segment is allowed to be controlled according to the type of the daylight zone in which the segment is primarily located. The inclusion of the word "segment" is also to avoid any confusion arising from misinterpretation of this exception. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.1(d)2F

**Purpose:** The specific purpose of this change is to retain the clause of item 6 of Section 130.1(d)2F of the 2022 Code about interactions of daylight responsive controls with other lighting controls. The clause is "The automatic daylighting control shall permit the multilevel lighting control to adjust the level of lighting." A non-substantive errata change was made to correct the reference from 130.1(d)2G to 130.1(d)2F.

**Necessity:** It is necessary to include a clause in the Code that expressly states that the automatic daylighting control shall permit the multilevel lighting control to adjust the level of lighting. The clause can clarify that it is permitted for the daylighting controls to allow the multilevel lighting control (a manual control) to increase the lighting level or to decrease the lighting level and it meets the Energy Code. The edit from 130.1(d)2G to 130.1(d)2F is necessary a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.2(c)2B

**Purpose:** The specific purpose of this change is to remove the word "partially" preceding the phrase "reducing the outdoor lighting power."

**Necessity:** The qualifying word "partially" is redundant with the rest of the requirement which requires reduction percentages between 50 to 90 percent. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.2(c)3B

**Purpose:** The specific purpose of this change is to remove the word "partially" preceding "the phrase reducing the outdoor lighting power."

**Necessity:** The qualifying word "partially" is redundant with the rest of the requirement which requires reduction percentages between 50 to 90 percent. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of

the Energy Code, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.4(a)3

**Purpose:** The specific purpose of this change is to replace "Automatic daylight" with "Daylight responsive".

**Necessity:** This change is necessary to align with the new defined term "Daylight Responsive Control," which replaces the previous term "Automatic Daylighting Controls" in Section 130.1(d) and Section 160.5(b)4D. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 130.5(d)2

**Purpose:** The specific purpose of this change is to replace the term "multiple receptacle" with "multiple-receptacle outlet" in the section.

**Necessity:** The term "multiple-receptacle outlet" more clearly indicates an outlet with more than one single contact device on the same yoke or strap, and more closely aligns with the usage of the term "receptacle" and "receptacle outlet" as defined in the California Electrical Code. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.1

**Purpose:** The specific purpose of this change is to replace the reference to the Alternative Calculation Method Approval Manual with a reference to Sections 10-109(c) and 10-116.

**Necessity:** The information in the ACM Approval Manual was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.1(a)

**Purpose:** The specific purpose of this change is to revise the long-term system cost (LSC) description. "Lighting" is added to the Efficiency LSC description and "lighting", and "other plug loads" are removed from the Total LSC description. Additionally, "energy storage systems" is revised to "battery energy storage systems". Some non-substantive errata edits were also made, which were incorporated into the regulatory text via the resolution adopting the regulatory text.

**Necessity:** The Efficiency LSC and the Total LSC are calculated by compliance software and include different end uses based on the building type being modeled. When nonresidential buildings are modeled for compliance, lighting end uses are included in the Efficiency LSC. Photovoltaic systems, battery energy storage systems, and demand flexibility in addition to Efficiency LSC, are considered in the Total LSC. End uses considered for LSC compliance in nonresidential buildings, multifamily buildings, and

single-family residential buildings are different. This results in different Efficiency LSC and Total LSC descriptions for each building type. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.3(a)9Cib

**Purpose:** The specific purpose of this change is to correct the section references to Reference Appendices, Nonresidential Appendices, NA5.2 to NA5.9.

**Necessity:** The 2022 Energy Code provided the wrong reference. This edit rectifies that error for this cycle. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.3(a), Table 140.3-B

**Purpose:** The specific purpose of this change is to replace “Glazed Doors” with “Fenestration” in the last row.

**Necessity:** This edit was necessary to rectify a mistake made when this table was reformatted. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16

**Section:** 140.4(a)1, Exception 1

**Purpose:** The specific purpose of this change is to clarify that energy budgets for nonresidential buildings are now expressed in terms of Long-Term System Costs (LSC). Obsolete language stating that energy budgets are expressed in Time Dependent Valuation (TDV) energy use was deleted and replaced with LSC in this 2025 Code Cycle.

**Necessity:** This change is necessary to update the new methods for calculating the energy budget presented this code cycle and provide the correct terms to be used for establishing energy budgets. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(a)2

**Purpose:** The purpose of this change is to remove the statement related to multi-zone systems. Section 140.4(a)3 was created to address multizone HVAC system requirements.

**Necessity:** Additional changes were made to the multizone sections after the 45-day Express Terms were posted for public comment. Relocating this language to the specific section where these requirements are located reduces confusion and increases clarity for readers. The change is necessary to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 140.4(a)3

**Purpose:** The purpose of this section is to add prescriptive requirements for Multi-zone Space-Conditioning System Types in office and school buildings. Systems covered in this section utilize cost effective and technically feasible heating, ventilation and air conditioning (HVAC) systems, including variable refrigerant flow (VRF) heat pumps, dedicated outdoor air systems (DOAS), and air-to-water heat pumps (AWHP). Minor grammar changes were also made to improve readability.

**Necessity:** The changes are necessary to address stakeholder feedback to increase design flexibility by adding additional system options in the proposed prescriptive regulation for school buildings in particular, and for school and office buildings overall. The change is necessary to reduce excessive energy use of space conditioning systems in office buildings and schools via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402. The grammar changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(a)3, Exception 1

**Purpose:** The specific purpose of this change is to add an exception for buildings greater than 150,000 square feet or greater than 5 habitable stories.

**Necessity:** This change is necessary to limit the multizone space conditioning system type requirements to buildings where the requirements are cost-effective and technically feasible. Supplementary staff analysis determined the measure was not cost-effective for buildings greater than 150,000 square feet or greater than 5 habitable stories. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3, Exception 2

**Purpose:** The specific purpose of this change is to add an exception from the requirements in Section 140.4(a)3 for school buildings in climate zones 6 and 7.

**Necessity:** This change is necessary to limit the multizone space conditioning system type requirements to buildings where the requirements are cost-effective. Supplementary staff analysis determined the measure is not cost effective for school buildings in climate zones 6 and 7. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3A

**Purpose:** The specific purpose of this change is to restructure this section to allow similar systems in both school and office buildings. Specifically, the proposed introductory text of this section is: "Space-conditioning systems shall comply with one of the following requirements:"

**Necessity:** The change is necessary to address stakeholder feedback to increase system options in the proposed prescriptive regulation for school buildings in particular, and in

school and office buildings overall. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(a)3Ai

**Purpose:** The specific purpose of these changes is to expand the VRF heat pump system prescriptive compliance alternative to school buildings, and to require that the VRF system include refrigerant-loop heat recovery. The change also clarifies that ventilation by the DOAS is required for all zones. The other changes are editorial, specifically, to delete ‘or’ at the end of Section 140.4(a)3Ai.

**Necessity:** The change is necessary to address stakeholder feedback to increase system options in the proposed prescriptive regulation for school buildings in particular, and for school and office buildings overall. Each of the technical requirements is demonstrated to be necessary for energy equivalence in the supplemental staff analysis for this measure. The change is necessary to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 140.4(a)3Aii

**Purpose:** The specific purpose of these changes is to clarify requirements for the four-pipe fan coil terminal units prescriptive compliance alternative. Specifically, the proposed changes are more specific that the DOAS provides ventilation to all zones served by the space-conditioning system, include indoor fan requirements of section 140.4(a)3D, and make an editorial correction from “which” to “that”.

**Necessity:** The change is necessary to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 140.4(a)3Aiii

**Purpose:** The specific purpose of this section is to establish a prescriptive compliance alternative for a variable air volume (VAV) system in combination with an air to water heat pump in both school and office buildings.

**Necessity:** The change is necessary to address stakeholder feedback to increase system options in the proposed prescriptive regulation for school buildings in particular, and for school and office buildings overall. This change is necessary to increase flexibility in the proposed prescriptive regulation by allowing Variable Air Volume (VAV) systems to be used in combination with an AWHP. Each of the technical requirements is demonstrated to be necessary for energy equivalence in the supplemental staff analysis for this measure. The change is necessary to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 140.4(a)3Aiiia

**Purpose:** The specific purpose of this section is to specify requirements for office buildings complying with the prescriptive compliance alternative for a variable air volume (VAV) system in combination with an air to water heat pump.

**Necessity:** This change is necessary to address stakeholder feedback to increase flexibility in the proposed prescriptive regulation, and specifically to allow variable air volume systems. Each of the technical requirements is demonstrated to be necessary for energy equivalence in the supplemental staff analysis for this measure. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3Aiii

**Purpose:** The specific purpose of this section is to specify requirements for school buildings complying with the prescriptive compliance alternative for a variable air volume (VAV) system in combination with an air to water heat pump.

**Necessity:** This change is necessary to address stakeholder feedback to increase flexibility in the proposed prescriptive regulation, and specifically to allow variable air volume systems. Each of the technical requirements is demonstrated to be necessary for energy equivalence in the supplemental staff analysis for this measure. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3Aiv

**Purpose:** The specific purpose of this change is to add a prescriptive compliance alternative for dual-fan dual-duct systems that use heat pumps as a heating source in both school and office buildings.

**Necessity:** This change is necessary to address stakeholder feedback to increase flexibility in the proposed prescriptive regulation, and specifically to allow dual-fan, dual-duct systems in both school and office buildings. Each of the technical requirements is demonstrated to be necessary for energy equivalence in the supplemental staff analysis for this measure. The change is necessary to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 140.4(a)3Av

**Purpose:** The purpose of this change is to relocate the Executive Director's pathway from Section 140.4(a)3G to 140.4(a)3Av to clarify that this alternative allows flexibility for other prescriptive compliance alternatives.

**Necessity:** This change is necessary to address stakeholder feedback to increase flexibility in the proposed prescriptive regulation. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(a)3B

**Purpose:** The specific purpose of this change is to restructure Section 140.4(a)3. This change removes schools from Section 140.4(a)3B, since the requirements for school buildings have been relocated to Section 140.4(a)3A.



**Necessity:** The change is necessary to address stakeholder feedback to increase system options in the proposed prescriptive regulation for school buildings in particular, and for school and office buildings overall. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(a)3C

**Purpose:** The specific purpose of this change is to restructure the air to water heat pump space-heating water loop requirements 140.4(a)3Ci through iii, and to update references to align with the restructuring of Section 140.4(a)3 in the introductory paragraph for this subsection. Additionally, the reference to Air-source heat pump was corrected with the acronym for air-to-water heat pumps, that is AWHPs.

**Necessity:** These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3Ci

**Purpose:** The specific purpose of this change is to allow a broader variety of air-to-water heat pumps to comply with the requirements, by aligning the efficiency requirements with those specified in Table 110.2-J.

**Necessity:** The change to Section 140.4(a)3C is necessary to address stakeholder feedback to increase flexibility in the selection of air-to-water heat pumps by referencing the efficiency requirements outlined in Table 110.2-J. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3Cii

**Purpose:** The specific purpose of this change is to refer to Section 140.4(s) for heat recovery system requirements in the case where chilled water produced by an air to water heat pump is used for space cooling.

**Necessity:** The proposed change avoids including duplicative requirements related to heat recovery, instead referring to existing requirements in Section 140.4(s). The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(a)3Ciii

**Purpose:** The specific purpose of this change is to include requirements for supplemental heating by an electric resistance boiler based on percentage of the design space-heating hot water loop heating capacity.

**Necessity:** The proposed change allows an electric resistance boiler to provide supplemental heat, to reduce the size and cost of the air-to-water heat pump required to meet the majority of the space-heating load. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3D

**Purpose:** The specific purpose of these changes is to clarify that the 0.35 W/cfm metric applies to the maximum fan power at design airflow and to include part-load power-draw requirements that match the cost-effectiveness analysis assumptions, specifically maximum power draw requirements of 51 percent of fan power at 66 percent air flow, and 12 percent of fan power at 33 percent airflow. Additionally, the reference to Section 140.4(a)3B, which is no longer relevant, has been deleted.

**Necessity:** These changes are necessary to match the part-load power-draw requirements with the underlying cost-effectiveness analysis and to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3E

**Purpose:** The specific purpose of these changes is to clarify that only DOAS used to comply with Section 140.4(a)3Ai, or 140.4(a)3Aii, are required to comply with the listed requirements that match the cost-effectiveness analysis assumptions, to clarify that the 0.77 W/cfm metric applies to the maximum fan power at design airflow, to move the requirements of Exception 140.4(a)3E to 140.4(a)3Ei, to restructure the requirements for hydronic heating or cooling, to clearly state that electric resistance is not allowed, and to remove the reference to Section 140.4(a)3B, which is no longer relevant.

**Necessity:** These changes are necessary to ensure the measure matches the numerical values utilized in the cost-effectiveness analysis and to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3E, Exception

**Purpose:** The specific purpose of this change is to remove the exception to Section 140.4(a)3E, which has been replaced with the requirement in Section 140.4(a)3Eii in the restructuring of Section 140.4(a)3E.

**Necessity:** These changes are reasonably necessary because these requirements were moved into Section 140.4(a)3Eii. The change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(a)3F

**Purpose:** The specific purpose of this change is to specify requirements for parallel fan-powered boxes used to comply with Section 140.4(a)3Aiii that match the cost-effectiveness analysis assumptions. These systems shall use recirculated zone or plenum air in heating mode, fans shall cycle on only when demand for heating, maximum fan power shall not be greater than 0.3W/cfm at design airflow, and the ventilation air shall be set to the minimum ventilation rate when the zone is in deadband or there is heating demand.

**Necessity:** The necessity of this change is to clarify that multizone space conditioning systems that use VAV systems must be parallel fan-powered boxes that recirculate air from

the zone or plenums in heating mode to ensure that heating operation is energy-efficient. The specific values and requirements are necessary to match the cost-effectiveness analysis. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(a)3G

**Purpose:** The specific purpose of this change is to delete Section 140.4(a)3G and relocate the Executive Director's pathway from Section 140.4(a)3G to 140.4(a)3Av, which clarifies that this alternative allows flexibility for other prescriptive compliance alternatives.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(b)3A

**Purpose:** The specific purpose of this change is to remove the ASHRAE Equipment Volume and the ASHRAE Applications Volume references as options for selecting outdoor design conditions.

**Necessity:** This change is necessary to ensure that the ASHRAE Equipment Volume and the ASHRAE Applications Volume are not listed as sources for selecting outdoor design conditions because they do not contain a list of outdoor design conditions to be used. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(e)1, Exception 2

**Purpose:** The specific purpose of this change is to clarify that energy budgets for nonresidential buildings are now expressed in terms of Long-Term System Costs (LSC). Obsolete language stating that energy budgets are expressed in Time Dependent Valuation (TDV) energy use was deleted this code cycle and replaced with LSC for the 2025 code cycle.

**Necessity:** This change is necessary to update the new methods for calculating the energy budget presented this code cycle and provide the correct terms to be used for establishing energy budgets. This change improves the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(e)1, Exception 8

**Purpose:** The specific purpose of this change is to include an exception to economizing for building designs that comply with Sections 140.4(a)3Ai or 140.4(a)3Aii. It also removes a reference to Section 140.4(a)3B, which is no longer relevant.

**Necessity:** These changes are necessary since the analysis for the heat pump baseline docketed during the August 15-day comment period showed that installation of an

economizer is not necessary for energy-equivalence and cost-effectiveness of the measure. This change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(g), Exception 7

**Purpose:** The specific purpose of this change is to allow supplemental electric resistance heating systems when complying with Section 140.4(a)3C.

**Necessity:** These changes are necessary since the cost-effectiveness analysis used a supplemental electric resistance boiler with the air-to-water heat pump system. This change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(p)1, Exception

**Purpose:** The specific purpose of this change is to allow an exception to DOAS fan power requirements specified in Section 140.4(p)1 when DOAS is used to comply with Section 140.4(a)3E.

**Necessity:** These changes are necessary since the energy savings and cost-effectiveness for the analysis are based on a DOAS system that uses less fan power than in Section 140.4(p). This change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(q)

**Purpose:** The specific purpose of this change is to establish that the exhaust air heat recovery requirements specified in Section 140.4(q) apply to fan systems in compliance with Section 140.4(a)3.

**Necessity:** These changes are necessary to align with the heat recovery performance and controls used in the energy-savings and cost-effectiveness analysis, and are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402. Additionally, the changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(r)3

**Purpose:** The specific purpose of these changes is to clarify that certification is “to” the Energy Commission, consistent with Reference Joint Appendix JA18.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations, and to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(r)3, Exception

**Purpose:** The specific purpose of this change is to move the exception directly into Section 140.4(r)3, correct the reference to JA18, and clarify that non-programmable controllers are not subject to all certification requirements not just those within the programming library.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations, and to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.4(s)

**Purpose:** The specific purpose of this change is to clean up formatting by adding subsection 140.4(s)1Ai and ii, 140.4(s)1Bi and ii, 140.4(s)2A and B, and include “or” in 140.4(s)2A for clarity.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations.

**Section:** 140.4(s)1A

**Purpose:** The specific purpose of these changes is to add the words “simultaneous heat recovery” and “newly constructed” to the code requirements and to add the terms “water systems” and “stations” to the definition for SWHCAP. A non-substantive errata edit was made to properly format the numbers. This errata change was incorporated into the final text via the resolution adopting the regulatory language.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations, and to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.6, Table 140.6-C - AREA CATEGORY METHOD - LIGHTING POWER DENSITY VALUES (WATTS/FT<sup>2</sup>)

**Purpose:** The specific purpose of this change is to replace the "NA" entries in Table 140.6-C with the specified lighting power density values from the 2022 Energy Code.

**Necessity:** The change to replace the “NA” entry with specified lighting power density values is necessary to clarify what is available and permitted for each primary functional area type as provided with the lighting power allowances in Table 140.6-C. The edit is also to clarify the reading of the ADA-formatted table content. All values that replace the NA entries come from the 2022 Energy Code. The correction is reasonably necessary to avoid confusing screen readers with multiple rows for the same Primary Function Area. Specifically, it is to clarify that the additional lighting power allowances in Table 140.6-C are not exclusive of each other and can be used for the qualified lighting systems for the

applicable lighting applications in the table-listed functional areas. The changes improve the general clarity and internal consistency of the Energy Code.

**Section:** 140.9(b)1B

**Purpose:** The specific purpose of this change is to update the reference from Table 140.9-A to the correct table 140.9-C.

**Necessity:** This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. This a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.9(c)1Ai

**Purpose:** The specific purpose of this change is to add the language “User defined airflow”.

**Necessity:** This change is reasonably necessary to clarify that it is the user defined airflow that shall not exceed 1.0 cfm/ft<sup>2</sup>. This change improves the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.9(c)1Bi

**Purpose:** The specific purpose of this change is to add the language “User defined airflow”.

**Necessity:** This change is necessary to clarify that it is the user defined airflow that shall not exceed 0.67 cfm/ft<sup>2</sup>. This change improves the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(a)

**Purpose:** The specific purpose of this change is to remove the term “constitute at least 80 percent of the floor area of the building” and replace it with “at least 80 percent of the floor area of the building serves” is to. The specific purpose of removing the word “PV” is that it is redundant.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. The specific reason for reordering the floor area percentage and removing the word “PV” is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(a)2C

**Purpose:** The specific purpose of this change is to reorganize the structure of language from the 45-day Express Terms by splitting the language further into i. and ii. The restructuring specifies that the Executive Director should only confirm the roof area that is otherwise not available due to compliance with local building codes, while compliance with state building codes does not need Executive Director approval.

**Necessity:** The reason for this change is to reorganize the paragraph and clarify the two different components referenced here, one being the “other state building requirements and the other being the Executive Director approval just for the local building code. These changes ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(a), Equation 140.10-A

**Purpose:** The specific purpose of this change is to remove the word “Size” and replace it with the word “Capacity”.

**Necessity:** This change is reasonably necessary to align code language with the nonresidential PV and Battery technical report docketed on CEC website. Additionally, removing the word “SIZE” and adding the word “CAPACITY” helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(a), Exception 2

**Purpose:** The specific purpose of this change is to remove the word “SIZE” and replace it with the word “Capacity”.

**Necessity:** This change is reasonably necessary to align code language with the nonresidential PV and Battery technical report docketed on CEC website. Additionally, removing the word “SIZE” and adding the word “Capacity” helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(a), Exception 5

**Purpose:** The specific purpose of this change is to remove the word “individual” and add the word “tenant” to read “tenant spaces”.

**Necessity:** This change is reasonably necessary because there is no definition for individual HVAC in the Energy Code. The reason for adding the word “tenant” before space is for clarity and consistency with other parts of the Energy Code, including the definition provided in 100.1(b). The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(b)

**Purpose:** The specific purpose of this change is to capitalize BESS as Battery Energy Storage System since it is a proper noun, and to correct a section reference from "140.4(a)" to "140.10(a)." that was missed in the 45-day Express Terms.

**Necessity:** These changes are necessary to correct reference and spelling errors which help improve the internal consistency and general clarity of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(b), Equation 140.10-B

**Purpose:** The specific purpose to add words "Minimum" and "Usable" in the title of the equation is to make it consistent with its definition in the equation as used in equation 140.10-C, and the specific purpose to remove the letter "e" in the word "Useable" in the definition for equation is to correct the spelling of the word.

**Necessity:** The reason for these changes is to help improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(b), Equation 140.10-C

**Purpose:** The specific purpose for adding the words "Minimum" and "Usable" in the title of the equation is to make it consistent with the definition provided in the equation.

**Necessity:** The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(b), Equation 140.10-D

**Purpose:** The specific purpose for adding words "Minimum" in the preceding definition for equation is to provide clarity that that output from the equation is the minimum needed for prescriptive compliance.

**Necessity:** This change is needed to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(b), Exception 1

**Purpose:** The specific purpose of this change is to remove the word "size" and replace it with the word "capacity".

**Necessity:** These changes are reasonably necessary in order to align code language with the nonresidential PV and Battery technical report docketed on CEC website. Additionally, removing the word "size" and adding the word "capacity" helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.



**Section:** 140.10(b), Exception 2

**Purpose:** The specific purpose of the changes is to add the clause “if the rated usable energy capacity determined by Equation 140.10-B or Equation 140.10-C is” and removing “in buildings with BESS requirements with” and “rated capacity” to make it consistent with its definition in Equation 140.10-B and Equation 140.10-C.

**Necessity:** These changes help improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10(b), Exception 3

**Purpose:** The specific purpose of removing the term “and power capacity” is that the power capacity is not dependent on CFA in Energy Code, and it is indirectly dependent on CFA.

**Necessity:** This change is reasonably necessary to rectify a mistake that was provided in the 45-day Express Terms. The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10, Table 140.10-A

**Purpose:** The specific purpose of adding “, Medical Office Building/Clinic” to the “Office, Financial Institution, Unleased Tenant Space” row is to align this code language with the nonresidential PV and Battery technical report docketed on CEC website.

**Necessity:** This building type was unintentionally left out of the 45-day Express Terms. The change is necessary to correct the building definition and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10, Table 140.10-B

**Purpose:** The specific purpose of adding “, Medical Office Building/Clinic” to the “Office, Financial Institution, Unleased Tenant Space” row in table 140.10-B is to align this code language with the nonresidential PV and Battery technical report docketed on CEC website.

**Necessity:** This building type was unintentionally left out of the 45-day Express Terms. The change is necessary to correct the building definition and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 140.10, Table 140.10-B

**Purpose:** The specific purpose of adding “Footnote requirements to TABLE 140.10-B: 1. NR = Not Required” is to provide an explanation for the abbreviation “NR” as it appears in the table. Previously it was confusing for the stakeholders as it is also used as an abbreviation for Non-Residential elsewhere in the Energy Code.

**Necessity:** Adding the footnote is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section R16.

**Section:** 141.0

**Purpose:** The specific purpose of this change is to update the section references to extend the requirements for additions, alterations, and repairs to existing nonresidential and hotel/motel buildings up through Section 110.12.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0(a)2Bii

**Purpose:** The specific purpose of this change is to clarify that energy budgets for nonresidential buildings are now expressed in terms of Long-Term System Costs (LSC). Obsolete language stating that energy budgets are expressed in Time Dependent Valuation (TDV) energy use was deleted and replaced with LSC in the 2025 code cycle.

**Necessity:** This change is necessary to update the new methods for how the energy budget is to be calculated this code cycle and provide the correct terms to be used for establishing energy budgets. This change improves the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 113249.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0(b)2Cii

**Purpose:** The specific purpose of this change is to restructure the section by referring to requirements by building type and climate zone in Table 141.0-E-1 for heat pump baseline alterations instead of including an itemized list of requirements as previously listed in the 45-day Express Terms as items a through d in this subsection. This edit thus removes items a through d here but are still found in Table 141.0-E.

**Necessity:** These changes are reasonably necessary to ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations. The equipment listed in Table 141.0-E-1 specify that economizers are required in accordance with Section 140.4(e). As such, Section 141.0(b)2Ciii is no longer needed. These changes simplify the code to allow users to review only one set of requirements, as provided by the table referenced above. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0, Table 141.0-E-1

**Purpose:** The purpose of this change is to clarify the application of economizers where applicable as required by 140.4(e) and to clarify that the variable speed drive is a necessary measure for the alternative prescriptive path.

**Necessity:** This is necessary to ensure economizers are applied correctly to replacement RTUs. This change is also necessary to ensure and improve the general clarity and internal

consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0, Table 141.0-E-1

**Purpose:** The specific purpose of this change is to clarify that the required single zone air conditioner and heat pump systems in Table 141.0-E-1 include economizers in accordance with Section 140.4(e).

**Necessity:** These changes are necessary to ensure consistency with the requirements of Section 140.4(e). These changes are also necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 141.0, Table 141.0-E, footnotes

**Purpose:** The specific purpose of adding “or dual fuel heat pumps”, “or dual fuel heat pump + economizer”, “variable speed fan”, and “dual heat pump + economizer + variable speed fan” to the text under Table 141.0-E-1 is to clearly state what is included, or considered equivalent, to the various packages presented in Table 141.0-E-1.

**Necessity:** This change helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. These changes are also necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 141.0, Table 141.0-E

**Purpose:** The specific purpose of adding “or dual fuel heat pumps” to the text under Table 141.0-E-1 (beginning with “Air conditioners with furnaces”), is to clarify that requirements for dual fuel heat pumps are consistent with requirements for air conditioners with furnaces.

**Necessity:** The change is necessary to address stakeholder feedback to increase system options in the proposed regulations. Each of the technical requirements is demonstrated to be necessary for energy equivalence in supplemental staff analysis for this measure. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 141.0(b)2Ciii1 and 2

**Purpose:** The specific purpose of these changes is to remove this language from this location due to copy paste error, and to move subsection 2 to Exception 6 of 141.0(b)2C.

**Necessity:** This language was necessary to correct a mistake in the 45-day Express Terms. This change helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0(b)2C, Exception 6

**Purpose:** The specific purpose of this change is to move this code section back into the exception list as it was provided in the 2022 code cycle. The changes to this exception clarify the criteria for what system types are required to follow 140.4(e). The specific purpose of Exception 6 to Section 141.0(b)2C is to except from the economizer requirements in Section 140.4(e) systems that are both “not a single package air-cooled commercial unitary air conditioner or heat pump” and where “cooling capacity of the system is less than 54,000 Btu/h.” “Greater than 54,000 Btu/hr” was changed to “less than 54,000 Btu/h” which was a mistake when moved in 45-day language.

**Necessity:** The change to move this out of 141.0(b)2Ciii into t Exception 6 was needed to correctly apply the requirements for when 140.4(e) applies and correct a mistake. The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section:** 141.0(b)2I

**Purpose:** The specific purpose of this change is to delete the referenced Section 130.1(c)1D.

**Necessity:** The change to delete the referenced section is necessary as there is no Section 130.1(c)1D in the Energy Code. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0(b)2Q

**Purpose:** The specific purpose of this change is to update the Nonresidential Appendix section requirements NA 2.4 to 5.1 and NA2.4 to 5.7, respectively.

**Necessity:** These references were provided incorrectly previously. This change corrects that previous error. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0(b)3A, Exception 1

**Purpose:** The specific purpose of this change is to direct users to the requirements outlined in table 141.0-E-2

**Necessity:** In the 2022 code cycle there was only one TABLE 141.0-E. This code cycle TABLE 141.0-E-1 was added thus the reference to this newly titled table needed to be updated. The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0, Table 141.0-E-2

**Purpose:** The table number has been updated from Table 141.0-E to Table 141.0-E-2 to ensure it follows the correct numbering sequence

**Necessity:** In the 2022 code cycle there was only one TABLE 141.0-E. This code cycle TABLE 141.0-E-1 was added thus the title for the previous TABLE 141.0-E needed to be updated to TABLE 141.0-E-2. The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 141.0, Table 141.0-F - Control Requirements for Indoor Lighting System Alterations

**Purpose:** The specific purpose of this change is to replace the word "daylighting" to "daylight responsive" in this Table under the column labeled "control specifications".

**Necessity:** The change to replace the word is necessary to reflect the term "daylight responsive controls" which is used instead of "Automatic daylight controls" in Section 130.1(d) for the 2025 California Energy Code. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0, Note

**Purpose:** The specific purpose of this change is to extend the list of requirements to Sections 150.0(a) through 150.0(v); the list of requirements previously ended at 150.0(r) but was extended through 150.0(v) in the 2022 Energy Code.

**Necessity:** This change is necessary to ensure that all of the requirements of Section 150.0 apply to newly constructed buildings, and select requirements apply to additions and alterations. The additional requirements ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402. Also, this change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(a)1, Exception 1.iii

**Purpose:** The specific purpose of this change is to add an exception to the roof deck insulation requirement for single-family buildings with ductless space conditioning systems. This requirement is intended to protect ducts located in a ventilated attic by providing a minimum level of insulation at the roof deck. Where there are no ducts, there is no need for roof deck insulation requirement.

**Necessity:** This change is necessary to clarify and ensure that the roof deck insulation requirement does not apply when there are no ducts located within the attic space. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(c)5

**Purpose:** The specific purpose of this change is to update the terminology for “Masonry/Mass Walls” to include the term Mass to reflect industry terminology.

**Necessity:** This change is necessary to ensure that the requirements are clear and unambiguous by aligning with industry terminology. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(h)1, Exception 1

**Purpose:** The purpose of this change is to replace the parentheses used to separate the phrase, “the total load for all rooms combined that are served by the central equipment,” with commas to remain consistent with other Energy Code sections.

**Necessity:** This change is necessary to make the language consistent with the exception to Section 160.3(b)(1) and to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(h)2Bii

**Purpose:** The specific purpose of this change is to remove the ASHRAE Equipment Volume and the ASHRAE Applications Volume as options for selecting outdoor design conditions.

**Necessity:** This change is necessary to ensure that the ASHRAE Equipment Volume and the ASHRAE Applications Volume are not listed as sources for selecting outdoor design conditions because they do not contain a list of outdoor design conditions to be used. This change is necessary to ensure and improve the general clarity, accuracy, and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(h)2Biii

**Purpose:** The specific purpose of this change is to remove the SMACNA Residential Comfort System Installation Standards Manual, as an option for selecting outdoor design conditions.

**Necessity:** This change is necessary to ensure that the SMACNA Residential Comfort System Installation Standards Manual is not listed as a source for selecting outdoor design conditions because it does not contain a list of outdoor design conditions to be used. This change is necessary to ensure and improve the general clarity, accuracy, and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(h)5Biii

**Purpose:** The specific purpose of this change is to remove incorrect language that states that there is no limit on minimum capacity for heat pump space heating.

**Necessity:** This change is necessary to prevent conflict between the removed language and the new minimum capacity requirements for heat pump space heaters. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. Additionally, the change will ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.0(h)6

**Purpose:** The purpose of this change is to update the language to state that the defrost delay timer requirement is applicable to heat pumps equipped with "an installer adjustable" defrost delay timer.

**Necessity:** This change is necessary to address stakeholder feedback that the defrost delay timer requirements should only apply to heat pumps with defrost delay timers that are meant to be installer adjustable, and do not apply to heat pumps that utilize non-installer adjustable defrost delay timers, such as systems with demand defrost. This change is necessary to ensure products are properly installed to achieve the intended energy savings, consistent with the CEC's mandate to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.0(h)7, Exception 1 (old)

**Purpose:** The specific purpose of this change is to renumber the former Exception 1 to Section 150.0(h)7 to Exception 2 to Section 150.0(h)7.

**Necessity:** These changes are necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(h)7, Exception 2 (old)

**Purpose:** The specific purpose of this change is to merge the previous Exceptions 2 and 3 to Section 150.0(h)7 into a new Exception 1 to Section 150.0(h)7, as well as to add supplementary heating control requirements to the new Exception 1 to Section 150.0(h)7. Specifically, the new Exception 1 to Section 150.0(h)7 defines two options, Option A and Option B, for control requirements that limit supplementary heating operation when heat pumps alone can meet loads for buildings in Climate Zones 7 and 15 (formerly Exception 2 to Section 150.0(h)7) and to buildings with conditioned floor area less than 500 square feet (formerly Exception 1 to Section 150.0(h)7).

**Necessity:** This new exception is necessary to ensure that supplementary heating is not used when heat pump space conditioning systems are able to meet loads. Limiting inefficient electric resistance supplementary heating use or gas supplementary heating use to only necessary times will ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402. Consolidating exceptions is also necessary to improve general

clarity and consistency of the regulations, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section:** 150.0(h)7, Exception 3 (old)

**Purpose:** The specific purpose of this change is to merge the previous Exception 3 to Section 150.0(h)7 into a new Exception 1 to Section 150.0(h)7. The new Exception 1 to Section 150.0(h)7 creates an exception to the supplementary heating requirements in Section 150.0(h)7 for buildings in Climate Zones 7 and 15, and buildings with a conditioned floor area less than 500 square feet, while also defining supplementary heating control requirements specific to these building types. These control requirements focus on limiting supplementary heating operation when heat pumps alone can meet loads.

**Necessity:** This new exception is necessary to ensure that supplementary heating is not used when heat pump space conditioning systems are able to meet loads. Limiting inefficient electric resistance supplementary heating use or gas supplementary heating use to only necessary times will ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.0(i)2

**Purpose:** The specific purpose of this change is to correct the language to reference "Section 150.0(i)1" instead of incorrectly referencing "Section 150.0(i)A."

**Necessity:** This change is necessary to ensure the correct section of the Energy Code is being referenced. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(i)2A, B, and C, Exception

**Purpose:** The specific purpose of this change is to amend the exception, so that it applies to 150.0(i)2A and to correct the language to reference "Section 150.0(h)7" instead of incorrectly referencing "Section 150.0(h)9."

**Necessity:** This change is necessary to ensure the correct section of the Energy Code is being referenced. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(i)2, Exception 1

**Purpose:** The specific purpose of this change is to add an exception to the requirements for thermostats that are applied to heat pumps with supplemental heating for systems that comply with Exception 1 to Section 150.0(h)7. This provides an exception for buildings in climate zones 7 and 15, as well as buildings with a conditioned floor area less than 500 square feet. These buildings are required instead to limit supplementary heating as described in Exception 1 to Section 150.0(h)7.



**Necessity:** These changes are necessary to maintain consistency with Exception 1 to Section 150.0(h)7, which provides separate requirements related to control of supplementary heating for heat pump space conditioning systems for buildings in climate zones 7 and 15 and buildings with conditioned floor area less than 500 square feet. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(m)1Bi, Exception 1

**Purpose:** The specific purpose of this change is to fix the numbering of the Exceptions by adding a “1” behind the word “Exception.”

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(m)1Bi, Exception 2

**Purpose:** The specific purpose of this change is to add an exception allowing for ducts located in an unventilated attic to be insulated to a minimum level of R-4.2 when there is at least R-30 insulation at the roof deck, the gable ends are insulated to meet the requirements of 150.1(c)1B, and the dwelling unit achieves a whole building leakage rate of 3.0 ACH50 or less. After several discussions with stakeholders and industry experts, this specific combination of measures was found to perform at a level that is nearly identical to ducts located below the attic and entirely in conditioned space.

**Necessity:** This change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.0(m)12Biib

**Purpose:** The purpose of this change is to change the British pound (£) symbol added instead of the less than to or equal to ( $\leq$ ) sign used in the equation.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(m)12C

**Purpose:** Particle size range for air filter efficiency ratings should be defined in micrometers “ $\mu\text{m}$ ” and not in “mm”. This is a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected. This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(m)13C, Exception 1

**Purpose:** This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. Edit to align with Exception 1 to Section 160.3(b)5Liii. These are non-substantive edits to improve readability and clarity.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(o), Exception

**Purpose:** The specific purpose of this change is to update the referred Sections numbers Section 6.5.2 to 6.1.3 to align with changes in the 2022 ASHRAE 62.2.

**Necessity:** This change is necessary as Section 6.5.2 in the ASHRAE 62.2-2019 is a requirement for space conditioning systems ducts and in 62.2-2022, this requirement that is referenced by the Energy Code is moved to Section 6.1.3. This change is necessary to improve the general clarity and internal consistency of the Energy Code with the ASHRAE 62.2-2022, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(o)1C

**Purpose:** The specific purpose of these changes is to include single family vertically attached dwelling units such as duplexes and triplexes and re-numbering edits for clarity.

**Necessity:** These changes are necessary because Section 150.0(o)1C of the 2022 Energy Code did not explicitly address vertically-attached dwelling units, such as duplexes and triplexes. While Section 150.0(o) requires all dwelling units to comply with ASHRAE Standard 62.2, Section 150.0(o)1C previously only referenced whole-dwelling unit mechanical ventilation for single-family detached dwellings. This made it unclear whether vertically-attached units were included. Explicitly specifying vertically-attached dwelling units in Section 150.0(o)1C would improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1.

**Section:** 150.0(o)1Gvi

**Purpose:** This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. Edit made to fix the section number in the Code to align with the section numbering of ASHRAE 62.2-2022 for sound rating has been moved from Section 7.2 to 7.3. This is a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(o)1l

**Purpose:** This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. Edit made to fix the section number in the Code to align with the section numbering of ASHRAE 62.2-2022 for sound rating has been moved from Section 7.2 to 7.3. This is a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.0(q), Exception 3

**Purpose:** The specific purpose of this addition is to prevent conflict between the requirement of Title 24 part 6 and part 2.5 when a Fenestration installed in a residential building constructed in Fire Hazard Severity Zone or any Wildland-Urban Interface (WUI) Fire Area.

**Necessity:** This exception is necessary to is to prevent conflict between the requirement of title 24 part 6 and part 2 when a building is constructed in Fire Hazard Severity Zone or any Wildland-Urban Interface (WUI) Fire Area consistent with California Public Resources Code sections 25213 and 25402.

**Section:** 150.1(b)

**Purpose:** The specific purpose of this change is to replace the reference to the Alternative Calculation Method (ACM) Approval Manual with a reference to Section 10-109(c) and 10-116.

**Necessity:** The information in the ACM Approval Manual was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. The reference was updated to reference the appropriate section. This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.1(b)1Ai

**Purpose:** The specific purpose of this change is to revise the long-term system cost (LSC) description by adding “Self-utilization credit” to the Efficiency LSC description to indicate that the self-utilization credit is considered under the Efficiency LSC when using the performance compliance pathway.

**Necessity:** This change provides additional information regarding how specified end uses are accounted for by LSC and is necessary to ensure clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. These changes accurately describe how Efficiency LSC is calculated.

**Section:** 150.1(b)1Aii

**Purpose:** The specific purpose of this change is to revise the long-term system cost (LSC) description by revising “energy storage system (ESS)” to “battery energy storage system (BESS)” in the Total LSC energy description.

**Necessity:** This change is necessary to ensure clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. These changes accurately describe how Total LSC is calculated and ensures consistency with the defined terminology in Section 100.1(b).

**Section:** 150.1(c)1a

**Purpose:** The specific purpose of this change is to add reference to subsection i, and to remove the language “in a ventilated attic” from the parent section 150.1A and instead specify this information at the Option level. These changes were made to potentially accommodate unventilated attics in a future code cycle update and to more closely align with the code language in Section 170.2(a)1B.

**Necessity:** These proposed changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.1(c)3A, Exception 1

**Purpose:** The specific purpose of this change is to limit the exception to climate zone 5 where the requirement was not found to be cost-effective. This change ensures that the requirement of Section 150.1(c)3A applies to all climate zones where it has shown to be cost-effective.

**Necessity:** This change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.1(c)9B

**Purpose:** The specific purpose of this change is to reword the prescriptive standards for clarity without substantively changing the requirement.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.1(c)14Biii

**Purpose:** The specific purpose of this change is to clarify that the total Solar Access Roof Area does not include roof area that is otherwise not available due to either state building code requirements or local building code requirements when those local building code requirements are confirmed by the Executive Director.

**Necessity:** The reason for this change is to reorganize the paragraph and clarify the necessity of Executive Director approval just for the local building code. This change is necessary to improve the general clarity and internal consistency of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.1, Table 150.1-A

**Purpose:** The specific purpose of this change is to specify a Fault Indicator Display (FID) is required if Heat Recovery Ventilator (HRV)/Energy Recovery Ventilator (ERV) systems installed in Section 150.1(c)15.

**Necessity:** This change is necessary to ensure there is no confusion that the requirement for an FID applies when an HRV/ERV is installed. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.1, Table 150.1-A

**Purpose:** This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. The edit fixed the requirement for Cathedral Ceilings to not have a radiant barrier: This is a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.1(c), Table 150.1-A

**Purpose:** The specific purpose of this change is to update the terminology for “Masonry/Mass Walls” to include the term Mass to reflect industry terminology.

**Necessity:** This change is necessary to ensure that the requirements are clear and unambiguous by aligning with industry terminology. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.1, Table 150.1-A

**Purpose:** This is a non-substantive edit that was incorporated into the final text via the resolution adopting the regulatory text. This edit fixed the footnote that is refer to Space-Heating - if gas, AFUE: This is a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1 and California Code of Regulations, Title 1, Section 16.

**Section:** 150.2(a)1Aiii

**Purpose:** The specific purpose of this change is to restructure Section 150.2(a)1Ai to convert Exception to Section 150.2(a)1Aii into a requirement as all of the requirements in Section 150.2(a)1A are modifications to the requirements of 150.1(c).

**Necessity:** This change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402. This change is also necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Section 150.2(a)1Ei

**Purpose:** The specific purpose of these changes is to clarify that the minimum capacity and supplemental heating sizing requirements in Sections 150.0(h)7 and 150.0(h)8 apply to space conditioning systems for additions.

**Necessity:** This change is necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402. These changes are necessary to improve the general clarity of the Energy Code and ensure that supplemental heating requirements in Sections 150.0(h)7 and 150.0(h)8 are applied to single-family additions.

**Section:** Section 150.2(a)1Eii

**Purpose:** The specific purpose of these changes is to modify the language to be more definitive, using the word “is” instead of “would be” to improve the clarity of the requirements.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Section 150.2(a)1Eii, Exception 1

**Purpose:** The specific purpose of these changes is to create an exception to the section’s maximum capacity requirements for ductless space conditioning systems because these systems’ efficiencies have not been shown to decrease when they are oversized without adequately sizing ducts.

**Necessity:** These changes are necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16, and ensure that maximum capacity requirements designed for ducted space conditioning systems do not affect ductless systems.

**Section:** Section 150.2(a)1Eii, Exception 2

**Purpose:** The specific purpose of these changes is to create an exception to the section’s maximum capacity requirements for variable-speed and multi-speed space conditioning systems that allows for the use of the use of larger of two available capacities if the

maximum system capacity specified in Tables 150.2-A or 150.2-B falls between two available system capacities for a space-conditioning system.

**Necessity:** This change ensures that installed variable-speed and multi-speed space conditioning systems have sufficient capacity to meet the maximum design loads. Variable-speed and multi-speed space conditioning systems are generally offered with limited options for heating and cooling capacity, with large gaps between capacity options. Requiring systems to default to the lower capacity system when the maximum system capacity falls between two available capacities would result in the system being undersized, and unable to meet the maximum design load. An undersized system would not meet consumer expectations of performance, and installers would be subject to unnecessary call backs. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.2(b)1A, Exception 1

**Purpose:** The specific purpose of this change is to change the word “adds” to “increases” for clarity.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.2(b)1Fii

**Purpose:** The specific purpose of this change is to modify the language to read “Climate Zones 2 and 8 through 15” instead of “Climate Zones 2, 8, 9, 10, 11, 12, 13, 14 and 15.”

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.2(b)1Fiii

**Purpose:** The specific purpose of this change is to modify the language to read “Climate Zones 2 and 8 through 15” instead of “Climate Zones 2, 8, 9, 10, 11, 12, 13, 14 and 15.”

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.2(b)1Mib

**Purpose:** The specific purpose of this change is to update the referred sections numbers from Section 7.2 to 7.3 to align with the 2022 ASHRAE 62.2.

**Necessity:** This change is necessary as the sound requirement for whole-dwelling unit replacement ventilation fans has moved from Section 7.2 to Section 7.3 in the ASHRAE 2022 version of 62.2. This change is necessary to improve the general clarity and internal consistency of the Energy Code with the ASHRAE 62.2-2022, as directed by California

Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.2(b)2B

**Purpose:** The specific purpose of this change is to remove “field verification and diagnostic testing”.

**Necessity:** This change is necessary to ensure there is no confusion as there is no “field verification and diagnostic testing” certified ECC-raters; which is a defined term in Section 100.1(b) and clarifies that they are certified to perform field verification and diagnostic testing. This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 150.2(b)2 – Note 3

**Purpose:** The specific purpose of this change is to replace the reference to the Residential ACM Approval Manual with a reference to Section 10-10(c)) and 10-116.

**Necessity:** The information in the ACM Approval Manual was incorporated in Section 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. The reference was updated to reference the appropriate section. The changes improve the general clarity and internal consistency of the Energy Code.

**Section:** 160.1(b)2

**Purpose:** The specific purpose of this change is to revert the requirement back to the current 2022 mandatory requirement for metal Framed multifamily buildings.

**Necessity:** The requirement is being reverted to prevent construction defects that may arise when installing continuous insulation, particularly those that could impact the appearance of the building.

**Section:** 160.1(e), Exception

**Purpose:** The specific purpose of this change is to add an exception to Section 160.1(e) to address fenestration, including skylights, installed in buildings in designated Fire Hazard Safety Zones or Wildland-Urban Interface (WUI) Fire Areas as designated by the local enforcement agency.

**Necessity:** This exception is necessary to is to prevent conflict between the requirement of title 24, Part 6 and Part 2 when a building is constructed in Fire Hazard Severity Zone or any Wildland-Urban Interface (WUI) Fire Area consistent with California Public Resources Code sections 25213 and 25402.

**Section:** 160.2(b)2, Exception

**Purpose:** The specific purpose of this change is to update the referred Sections numbers Section 6.5.2 to 6.1.3 to align as mentioned in 2022 ASHRAE 62.2.



**Necessity:** This change is necessary as in ASHRAE 62.2-2019 Section 6.5.2 is a requirement for space conditioning systems ducts and in ASHRAE 62.2-2022, which is referenced by the 2025 Energy Code this requirement is moved to Section 6.1.3.

**Section:** 160.2(b)2, Exception

**Purpose:** The specific purpose of this change is to provide an exception for ASHRAE 62.2-2022 Section 4.2 requirements.

**Necessity:** This change is necessary because ASHRAE 62.2-2022 Section 4.2 that is referenced in the Energy Code specifies the ventilation system type, and Section 160.2(b)2Aivb covers ventilation system type requirements and those requirements are different from the ASHRAE 62.2-2022 Section 4.2.

**Section:** 160.2(b)2Aivb2

**Purpose:** The purpose of this change is to revise language to specify air leakage rate shall not exceed 0.3 cubic feet per minute at 50 pascals (0.2 inches water) per ft<sup>2</sup> of dwelling unit envelope surface area.

**Necessity:** This change is necessary to provide clarity on air leakage rate requirements that shall not exceed 0.3 cubic feet per minute at 50 pascals (0.2 inches water) per ft<sup>2</sup> of dwelling unit envelope surface area in compartmentalization testing requirements and maintains internal consistency of the Energy Code, as directed by California Government Code Sections 1 to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.2(b)2Avif

**Purpose:** The specific purpose of this change is to update the referred Sections numbers Section 7.2 to 7.3 to align as mentioned in 2022 ASHRAE 62.2.

**Necessity:** This change is necessary as the sound requirement for fans has moved from Section 7.2 to Section 7.3 in the ASHRAE 2022 version of 62.2. The edit is necessary to improve general clarity and maintain internal consistency of the Energy Code, as directed by California Government Code Sections 1 to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.2(b)2Aviii

**Purpose:** The specific purpose of this change is to update the referred Sections numbers Section 7.2 to 7.3 to align as mentioned in 2022 ASHRAE 62.2.

**Necessity:** This change is necessary as the sound requirement for fans has moved from Section 7.2 to Section 7.3 in the ASHRAE 2022 version of 62.2 The edit is necessary to improve general clarity and maintain internal consistency of the Energy Code, as directed by California Government Code Sections 1 to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.2(b)2C, Exception

**Purpose:** The specific purpose of this change is to correct the exception from climate zone 7 to 6 which was not shown to be cost beneficial.

**Necessity:** These changes are reasonably necessary to ensure that regulations are cost beneficial and provide energy savings where appropriate.

**Section:** 160.2(c)8A

**Specific Purpose:** The specific purpose of these changes is to change “significant” to “low” and “offensive” to “inoffensive” to correct the language describing air class 1 to be consistent with ASHRAE definitions.

**Necessity:** These changes are reasonably necessary to mirror the ASHRAE language and ensure that regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations.

**Section:** 160.2, Table 160.2-E

**Purpose:** The specific purpose of this change is to remove the “or 5 ACH capacity” compliance criteria applicable to enclosed kitchens.

**Necessity:** This change is necessary to ensure public health and safety for occupants of dwelling units complying with the energy efficiency requirements of the Energy Code, consistent with State Statutes and policies of protecting and enhancing the indoor environmental quality in buildings. This change incorporates the 2022 ASHRAE 62.2 Section 5, Table 5-1 requirements with modifications to clarify airflow measurement procedures and align with changes made in Table 150.0-E. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by the California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.3(a)2Hviii

**Purpose:** The specific purpose of this change is to change “by” to “to”.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.3(b)1, Exception

**Purpose:** The purpose of this exception is to allow block loads to be used for the purpose of sizing space conditioning equipment for multifamily additions. The exception is intended to define when simplified space conditioning load calculations can be used.

**Necessity:** By permitting the use of block loads in this context, the exception allows for a holistic approach to achieve optimal sizing, contributing to the overall functionality and performance of space conditioning systems. This approach involves considering the loads on a block or zone basis rather than individually analyzing each room or space separately. The goal is to simplify the calculation process while still providing accurate results. This

exception will reduce excessive energy use, as directed by California Public Resources Code sections 25213 and 25402

**Section:** 160.3(b)2Bii

**Purpose:** The specific purpose of this change is to remove the ASHRAE Equipment Volume and the ASHRAE Applications Volume as options for selecting outdoor design conditions.

**Necessity:** This change is necessary to ensure that the ASHRAE Equipment Volume and the ASHRAE Applications Volume are not listed as sources for selecting outdoor design conditions because they do not contain a list of outdoor design conditions to be used. The change improves the general clarity and accuracy of the Energy Code.

**Section:** 160.3(b)2Biii

**Purpose:** The specific purpose of this change is to remove the SMACNA Residential Comfort System Installation Standards Manual as options for selecting outdoor design conditions.

**Necessity:** This change is necessary to ensure that the SMACNA Residential Comfort System Installation Standards Manual is not listed as sources for selecting outdoor design conditions because it does not contain a list of outdoor design conditions to be used. The change improves the general clarity and accuracy of the Energy Code.

**Section:** 160.3(b)5Liii: Exception 1

**Specific Purpose:** The specific purpose of this change is to remove “single speed compressor systems that utilize the performance compliance approach” from Exception 1 to Section 160.3(b)5Liii, as well as to more clearly specify that multispeed or variable speed compressor systems that comply with this exception must be able to modulate fan speed based on the real-time demand from conditioned zones. The exception is intended to offer a practical and verifiable approach for installer certification, allowing them to demonstrate compliance by operating the system at maximum compressor capacity and system fan speed while all zones are actively calling for conditioning instead of in every zonal control mode.

**Necessity:** This modification to the exception is needed to encourage the use of higher efficiency multispeed or variable speed compressor systems and ensure that these systems perform at required efficacy levels when a varying number of zones are calling for conditioning, which will increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.3(b)7B

**Purpose:** The specific purpose of this change is to replace the words “CF2R” with “Certificate of Installation” to increase clarity. “CF2R” compliance documents are specific to single-family buildings, so the more appropriate term to use here would be “Certificate of Installation”.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.3(b)8B

**Purpose:** The specific purpose of this change is to replace the words “CF2R” with “Certificate of Installation” to increase clarity. “CF2R” compliance documents are specific to single-family buildings, so the more appropriate term to use here would be “Certificate of Installation”.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.3(d)2A

**Purpose:** The specific purpose of this change is to remove “in multifamily buildings with four or more habitable stories,” and to add “subject to Section 160.2(b)2C.”

**Necessity:** This change is necessary to ensure that the changes to the central shaft ventilation system requirements are accurately captured by clarifying that all multifamily buildings with central ventilation ducts subject to Section 160.2(b)2C shall be leak tested in accordance with NA7.18.3. The change improves the general clarity and accuracy of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.4(e)

**Purpose:** The specific purpose of this change is to updated list of applicable requirements to "1 through 3 below". This aligns with the removal of the mandatory pipe insulation verification requirements in Section 160.4(e)4. The pipe insulation verification requirements have been relocated to the prescriptive section in Section 170.2(d)2E.

**Necessity:** This change is necessary to align with the deletion of Section 160.4(e)4. The change improves the general clarity and accuracy of the Energy Code. By changing the verification to a prescriptive requirement, it would provide builders more flexibility to use the performance approach and make late-stage adjustments, while preserving the energy savings from this measure.

**Section:** 160.4(e)1B

**Purpose:** The specific purpose of this change is to add the term “domestic hot water system” before appurtenances to align with the definition for domestic hot water system appurtenances in Section 100.1.

**Necessity:** This change is necessary to ensure that terminology used within the code language is used consistently and improves the general clarity and accuracy of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.4(e)3A

**Purpose:** The specific purpose of this change is to replace “re-installable” with “able to be reinstalled”

**Necessity:** These changes ensure and improve the general clarity and internal consistency of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.4(e)4

**Purpose:** The specific purpose of this change is to remove the mandatory pipe insulation verification requirements. These requirements have been relocated to the prescriptive section in Section 170.2(d)2E.

**Necessity:** Based on stakeholder feedback, there was a concern that as a new mandatory verification measure, the verification requirement could be overlooked, and the walls and ceilings closed up without verification. Staff determined that by changing the verification to a prescriptive requirement, it would provide builders more flexibility to use the performance approach and make late-stage adjustments, while preserving the energy savings from this measure.

**Section:** 160.5(a)3C

**Purpose:** The specific purpose of the change is to delete the sentence, "No controls shall bypass control functions of a dimmer, occupant sensor, or vacancy sensor where the dimmer or sensor has been installed to comply with Section 150.0(k)3." The net effect is to revert the code language back to what it was in the 2022 Energy Code.

**Necessity:** The change to delete the sentence about bypass control functions is necessary as the sentence contains requirements about dimmer, occupant sensor and vacancy sensor which are all for indoor controls – they are not applicable to outdoor controls. Since the requirements of the sentence are not applicable for the controls of the section, it is appropriate and necessary to delete the sentence. The changes improve the general clarity and internal consistency of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)1Aii, Exception

**Purpose:** Fixed the wrong section numbering. Should be Section 160.5(b)1Aii and not Section 160.5(b)1Aii. This is a typographical clerical error that renders the sentence nonsensical and therefore could lead to confusion if not corrected.

**Necessity:** This non-substantive change was made to the regulatory text via the resolution adopting the final regulations and is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4A

**Purpose:** The specific purpose of this change is to remove the word “enclosed” and to make a grammatical correction from “provide” to “be provided with”. The changes are to align with the nonresidential manual controls Section 130.1(a).

**Necessity:** The change to remove the word “enclosed” is to clarify that the requirements in Section 160.5(b)4A are applicable to all multifamily common use spaces. These changes are necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4A – item ii

**Purpose:** The specific purpose of the change is to delete the word “enclosed” preceding “space.”

The specific purpose of the other change is to replace the words "status display" with "the status." The changes are to align with the text about the manual controls in the nonresidential section detailed in Section 130.1(a).

**Necessity:** The change is necessary to prevent stakeholder confusion and by clarifying it is “the same space” that is applicable for these requirements.

Both changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

Section 160.5(b)4A Exception i

**Purpose:** The specific purpose of the change is to replace "area" with "space" to align the language with the manual controls language in the nonresidential section in Section 130.1. The changes are to align with the text about the manual controls in the nonresidential section.

**Necessity:** The change to replace the word “area” with “space” is necessary to prevent stakeholder confusion by clarifying it is “the space” that is applicable for these requirements.

This change improves the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

Section 160.5(b)4A Exception ii

**Purpose:** The specific purpose of this change is to replace “accessible” with “controllable”, to add "during a normal power failure", and to rearrange the wording as "The egress lighting controls shall not be controllable by unauthorized personnel during a normal power failure." The changes are to align with the text about the manual controls in the nonresidential section.

**Necessity:** The change to use the clause “The egress lighting controls shall not be controllable by unauthorized personnel during a normal power failure” is more accurate in stating the requirement about egress lighting controls – we do not want unauthorized personnel controlling the lighting controls during a normal power failure. The change to the Exception for egress lighting is necessary to clarify the condition where the egress lighting control is qualified for the exception to Section 160.5(b)4A of manual controls. The changes improve the general clarity and internal consistency of the Energy Code.

**Section:** 160.5(b)4B

**Purpose:** The specific purpose of this change is to add "with a size of" and "and" to the first sentence of Section 160.5(b)4B. The specific purpose of another change is to replace "provide" with "be provided with" and to delete "to achieve illuminance uniformity" from the second sentence. These changes are to align with the text of the multilevel lighting controls requirements in the nonresidential section.

**Necessity:**

The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4B Exception 1

**Purpose:** The specific purpose of this change is to replace the word "enclosed" with "indoor." The change is to align with the text of the multilevel lighting controls requirements in the nonresidential section.

**Necessity:** The change to "indoor space" is to ensure consistency in referring to "space" so that code readers would not be confused by the phrase "enclosed space". The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Cv

**Purpose:** The specific purpose of the change is to shorten the section heading.

Specifically, removed "are required for specified offices, multipurpose rooms, classrooms, conference rooms and restrooms" and converted existing text of "Occupant sensing controls" into a header for the subsection. Additionally, the specific purpose of the change is to remove restrooms from requirements for areas not required to have multilevel lighting controls.

**Necessity:** The change to shorten the section heading is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. The removal of the text, stating that restrooms are not required to have multilevel lighting controls, from Section 160.5(b)4B is necessary as to remove the redundancy of the code language. It is already not required for restrooms for meeting the multilevel lighting controls requirement as stated in Section 160.5(b)4B. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Cvi

**Purpose:** The specific purpose of the change is to shorten the section heading.

Specifically, converted existing text of "Full or partial-OFF occupant sensing controls" into a header for the subsection.

Revised the other existing text and added the revised text "For corridors, stairwells, offices greater than 250 square feet, parking garages, parking areas, loading areas, and unloading areas, the installed lighting shall meet the following requirements:" succeeding the subsection header.

**Necessity:** The change to shorten the section heading and the revised text succeeding the section heading is necessary to improve readability of the header. The change to add the revised text is to ensure the required spaces are completely listed in the beginning of the section.

The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Cvib, Exception

**Purpose:** The specific purpose is to add "b" to the end of the section numbering. Specifically, added "b" to the end of "Exception to Section 160.5(b)4Cvi," which was inadvertently left out.

**Necessity:** The change to add "b" to the end of the section numbering is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Cvic.iii

**Purpose:** The specific purpose of this change is to replace "space" with "zone" in the term "separately controlled space".

**Necessity:** The replacement with "zone" is necessary to align with usage of the term "control zone" in Section 160.5(b)4Cvic.iii to align with usage of the term in other related sections. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Dviii

**Purpose:** The specific purpose of this change is to modify the language to replace "for spaces required to install multilevel lighting controls under Section 160.5(b)4B, adjust lighting via continuous dimming or the number of control steps provided by the multilevel controls and allow the multilevel controls to adjust the light level" with "for spaces where the installation of multilevel lighting controls is required under Section 160.5(b)4B, allow the multilevel lighting controls to adjust the light level with continuous dimming." These changes were made to mirror the language in the nonresidential sections of the Energy Code to ensure internal consistency with nonresidential changes in 130.1(d)2C.

**Necessity:** These changes prevent confusion between the requirements for nonresidential and residential buildings and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Dxi (was 160.5(b)4Dxia)

**Purpose:** The specific purpose of this change is to change "daylighting" to "daylight responsive" in Section 160.5(b)4Dxia (now 160.5(b)4Dxi) to mirror the daylight response controls language in the nonresidential section in the Energy Code.

**Necessity:** These changes prevent confusion between the requirements for nonresidential and residential buildings and improve the general clarity and internal consistency of the



Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Dxi

**Purpose:** The specific purpose of this change is to retain the text language of the “interaction with other lighting controls (manual controls and daylighting controls)” of the 2022 Energy Code.

**Necessity:** This change is necessary to still provide a clarification for the scenario in which both manual controls and daylighting controls are installed. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4Dxib

**Purpose:** The specific purpose of this change is to delete the entire subsection of Section 160.5(b)4Dxib to mirror the text of the daylight responsive controls in the nonresidential section.

**Necessity:** It is necessary to include a clause that expressly states that the automatic daylighting control shall permit the multilevel lighting control to adjust the level of lighting. The clause can clarify that it is permitted for the daylighting controls to allow the multilevel lighting control (a manual control) to increase the lighting level or to decrease the lighting level and it meets the Energy Code. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(b)4D, Exception 6

**Purpose:** The specific purpose of this change is to revise the language of Exception 6 to Section 160.5(b)4D to mirror the language of the Nonresidential section (Exception 6 to Section 130.1(d)). Specifically, deleted “and luminaires for only dedicated ramps. Daylight adaptation zone and dedicated ramps are defined in Section 100.1”.

**Necessity:** These changes are necessary to mirror the text of the daylight responsive controls in the nonresidential section to prevent confusion between the requirements for nonresidential and residential buildings. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(c)2Bii

**Purpose:** The specific purpose of this change is to remove the word “partially” preceding “reducing”

**Necessity:** The removal of the qualifying word “partially” is necessary as the sentence is sufficient in specifying the requirement and the qualifying word is redundant and adds little additional meaning to the requirement. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(c)2Cii

**Purpose:** The specific purpose of this change is to remove the word "partially" preceding "reducing".

**Necessity:** The removal of the qualifying word "partially" is necessary as the sentence is sufficient in specifying the requirement and the qualifying word is redundant and adds little additional meaning to the requirement. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.5(e)1C

**Purpose:** The specific purpose of this change is to replace "Automatic daylight" with "Daylight responsive" in the section.

**Necessity:** The change of the term is necessary to reflect the term "daylight responsive controls" is used instead of "Automatic daylight controls" in Section 160.5(b)4D for the 2025 California Energy Code. These changes are necessary to mirror the text of the daylight responsive controls in the nonresidential section to prevent confusion between the requirements for nonresidential and residential buildings. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.6(d)2

**Purpose:** The specific purpose of this change is to replace the term "multiple receptacle" with "multiple-receptacle outlet" in the section. The change of the term with new wording "multiple-receptacle outlet" clarifies the term is to mean an outlet with more than one single contact device on the same yoke or strap.

**Necessity:** The change is also to replace the previous wording of the term "split-wired receptacle" as it is not a defined term in California Electrical Code. The term "multiple-receptacle outlet" is more closely aligned with the usage of the term "receptacle" and "receptacle outlet" as defined in California Electrical Code.

**Section:** 160.6(e)

**Purpose:** The specific purpose of this change is to add ", including demand responsive controls for controlled receptacles" to the section.

**Necessity:** The change to the name "daylight responsive controls" is necessary as the term "daylight Responsive Controls" replaces the previous term "automatic daylighting controls" (also referred as "daylighting controls") and is now being used in Section 160.5(b)4D. The change to add is necessary to for internal consistency with nonresidential requirements and to improve the general clarity and internal consistency of the Energy Code.

**Section:** 160.9(a)

**Purpose:** The specific purpose of this change is to update a missed subsection (f) that was added for the requirement of electric-ready equipment. It should include Sections 160.9(a) through (f), rather than ending at (e).

**Necessity:** The change is to update a missed subsection (f) that was added for the requirement of electric-ready equipment. It should include Sections 160.9(a) through (f), rather than ending at (e). The changes improve the general clarity and intent of the General Requirement.

**Section:** 160.9(e)

**Purpose:** The specific purpose of this change is to clarify that the individual heat pump water heater ready requirements are applicable to each gas or propane water heater.

**Necessity:** Based on stakeholder feedback, this change is necessary to remove ambiguity and clarify the intent of the individual heat pump water heater ready requirement. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16, as well as to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.9(e)

**Purpose:** The specific purpose of this change is to remove the reference to Section 160.9(f).

**Necessity:** This reference is no longer relevant due to the reorganization of Section 160.9. The changes improve the general clarity and intent of the Energy Code.

**Section:** 160.9(e)4B

**Purpose:** The specific purpose of this change is to restructure Section 160.9(e)4B to clearly identify the ventilation requirement when the space is designed to vent indoor. Requirements previously located in 160.9(e)4C have been relocated to this section.

**Necessity:** The changes improve the general clarity and intent of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.9(e)4C

**Purpose:** The specific purpose of this change is to create a new section to clearly identify the ventilation requirement when the space is designed to vent to the building exterior. Requirements previously located in 160.9(e)4B and 160.9(e)4C has been relocated to this section.

**Necessity:** The changes improve the general clarity and intent of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.9(e)4C Removed

**Purpose:** The specific purpose of this change is to remove the capped ducts requirements for the designated space. These requirements have been relocated to Section 160.9(e)4b and the new Section 160.9(e)4C.

**Necessity:** The changes improve the general clarity and intent of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.1(a)1

**Purpose:** The specific purpose of this change is to revise the long-term system cost (LSC) description. Self-utilization credit and lighting are added to the Efficiency LSC description and lighting, plug loads, and covered process loads are removed from the Total LSC description. Additionally, energy storage systems was revised to battery energy storage systems for consistency.

**Necessity:** The Efficiency LSC and the Total LSC are calculated by compliance software and included different end uses based on the building being modeled. When multifamily buildings are modeled for compliance, some demand flexibility and lighting end uses are considered in the Efficiency LSC. Photovoltaic systems, battery energy storage systems and demand flexibility, in addition to Efficiency LSC, are considered in the Total LSC. End uses considered for LSC compliance in nonresidential buildings, multifamily buildings, and single-family residential buildings are different. This results in different Efficiency LSC and Total LSC descriptions for each building type.

**Section:** 170.2(a)3Aii, Exception 4

**Purpose:** The specific purpose of this change is to remove the limitation on Exception 4 to multifamily buildings three habitable stories or less as computer modeling has shown that larger multifamily buildings can also benefit from higher RSHGC values in Climate Zones 1, 3, 5, and 16.

**Necessity:** This change is necessary to ensure and improve the internal consistency of the Energy Code by extending the exception to all multifamily buildings, regardless of the number of stories. This change also ensures reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 170.2(a), Table 170.2-A

**Purpose:** The specific purpose of this change is to remove the reference to footnote #5 from building component "Walls – Mass Light" as it does not apply.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(c)2C

**Purpose:** The specific purpose of this change is to remove the ASHRAE Equipment Volume and the ASHRAE Applications Volume as options for selecting outdoor design conditions.

**Necessity:** This change is necessary to ensure that the ASHRAE Equipment Volume and the ASHRAE Applications Volume are not listed as sources for selecting outdoor design conditions because they do not contain a list of outdoor design conditions to be used. This change is necessary to ensure and improve the general clarity, accuracy, and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(d)2C

**Purpose:** The specific purpose of this change is to remove the word “distribution” in application of Appendix M pipe sizing requirements to align with the intent of the measure, where Appendix M pipe sizing applies to the water heater and storage tank pipe sizing in addition to distribution pipe sizing.

**Necessity:** Staff analysis and the CASE Report relied upon show the proposed change is cost effective and saves energy on a statewide basis.

**Section:** 170.2(c)3Bv

**Specific Purpose:** The specific purpose of this change is editorial and non-substantive and updates Section “170.2(c)3Bvc” to “170.2(c)3Bv”. The changes in this section are made to strike out climate zone 4 and add climate zone 15 to require a heat pump space conditioning system installed to meet the requirements of Section 170.2(c)3Ai.

**Necessity:** The non-substantive editorial change was incorporated into the regulatory text via the resolution adopting the regulations and the climate zone changes are necessary to ensure and improve the general clarity and internal consistency of the Energy code. Requirements for heat pump space conditioning system in updated climate zones are to increase energy efficiency via cost-effective building design standards while also maintaining adequate indoor air quality.

**Section:** 170.2(c)3Bvi

**Specific Purpose:** The specific purpose of this change is editorial and non-substantive and updates Section “170.2(c)3Bv” to “170.2(c)3Bvi”. The changes in this Section are made to include all HRV/ERV systems serving an individual dwelling unit to have an FID that is ECC-rater field verified as specified in the reference appendix JA17.

**Necessity:** The non-substantive editorial change was incorporated into the regulatory text via the resolution adopting the regulations and the HRV/ERV changes are necessary to ensure and improve the general clarity and internal consistency of the Energy code and to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402. JA17 specifies HRV/ERV system FID qualification requirements including categories, instrumentation and reporting, and manufacturer certification.

**Section:** 170.2(d)

**Purpose:** The specific purpose of the change is to correct the reference in the preamble of Section 170.2(d) by removing “3 or 4” and adding an “or” between 1 and 2, which is a non-substantive edit incorporated into the final text via the resolution adopting the regulations. As part of the restructuring of Section 170.2(d), requirements formerly specified in Section 170.2(d)3 and 170.2(d)4, are now Sections 170.2(d)2B and 170.2(d)2C, respectively.

**Necessity:** The proposed numerical change for domestic hot water systems is a non-substantive change incorporated into the regulations via the resolution adopting the regulation and the additional restructuring is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(d)2D

**Purpose:** The specific purpose of this change is to correct the reference for RA4.4.19, Multiple Dwelling Units: Master Mixing Valves.

**Necessity:** The changes improve the general clarity and intent of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(d)2E

**Purpose:** The specific purpose of this change is to add a prescriptive requirement for field verification of pipe insulation quality. These requirements have been relocated from Section 160.4(e)4.

**Necessity:** Based on stakeholder feedback, there is concern that as a new verification measure, the verification requirement could be overlooked, and the walls and ceilings closed up without verification. By changing the verification to a prescriptive requirement, it would provide builders more flexibility to use the performance approach and make late-stage adjustments, while preserving the energy savings from this measure.

**Section:** Section 170.2(e)2Biii.e

**Purpose:** The specific purpose of this change is to revise the referenced section to Section 170.2(e)2B.

**Necessity:** The change to revise the referenced item is necessary to correct the referenced section, Section 170.2(e)1Aii, which does not exist. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Section 170.2(e)2Bvi

**Purpose:** The specific purpose of this change is to revise the referenced section to Section 170.2(e)2B.

**Necessity:** The change to revise the referenced item is necessary to correct the referenced section, Section 170.2(e)1Aii, which does not exist. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California

Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2, Table 170.2-M - AREA CATEGORY METHOD - LIGHTING POWER DENSITY VALUES (WATTS/FT<sup>2</sup>)

**Purpose:** The specific purpose of this change is to replace the "NA" entry in the table with the lighting power density values. The change clarifies what is available and permitted for each primary functional area type as provided with the lighting power allowances in Table 170.2-M. The edit also clarifies the reading of the ADA-formatted table content.

**Necessity:** The correction done to the "NA" entries is reasonably necessary to avoid likely confusions to the reader about multiple rows with the same Primary Function Area. Specifically, it is to clarify that the additional lighting power allowances in Table 140.6-C are not exclusive of each other and can be used for the qualified lighting systems for the applicable lighting applications in the table-listed functional areas. The changes improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(e)7, Exception 3

**Purpose:** The specific purpose of removing "170.1 V" is that it was added previously by mistake.

**Necessity:** The reason for this change is to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(f)

**Purpose:** The specific purpose of changing ", building's SARA (Solar Access Roof Area)" to "or the total Solar Access Roof Area (SARA)" in to make correction to the current structure of language.

**Necessity:** The reason for this change is to reorganize the paragraph and clarify the necessity of Executive Director approval just for the local building code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(f)Biii

**Purpose:** The specific purpose of change in 170.2(f)Biii is to reorganize the current structure of language to correct that Executive Director should confirm the Roof area that is otherwise not available due to compliance with just local building code, while state building code does not need Executive Director approval.

**Necessity:** The reason for this change in 170.2(f)Biii is to reorganize the paragraph and clarify the necessity of Executive Director approval just for the local building code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(f), Equation 170.2-C

**Purpose:** The specific purpose of deleting the underline of the equation is that it was crossed by mistake.

**Necessity:** The reason for deleting the underline of the equation is to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(f), Table 170.2-T

**Purpose:** The specific purpose of deleting the table in 45-day language and reverting back to the 2022 Energy Code is that the additional PV required for lower EER2 of HVAC equipment was insignificant for most climate zones and made the calculations over complicated for most stakeholders.

**Necessity:** The change is necessary to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 170.2(g)

**Purpose:** The specific purpose of removing the term “constitute at least 80 percent of the floor area of the building” and replace it with “at least 80 percent of the floor area of the building serves” is to include percentage of building types used in new building types defined in Section 170.2(g) as well as the previous building types.

**Necessity:** The reason for this change is to include percentage of building types used in new building types defined in Section 170.2(g) to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 170.2(g)

**Purpose:** The specific purpose of removing the word “PV” is that it is redundant and extra.

**Necessity:** The reason for removing “PV” is to reorganize the paragraph and clarify the necessity of Executive Director approval just for the local building code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(g)2C

**Purpose:** The specific purpose of change in 170.2(g)2C is to reorganize the current structure of language to correct that Executive Director should confirm the Roof area that is otherwise not available due to compliance with just local building code, while state building code does not need Executive Director approval.

**Necessity:** The reason for this change is to reorganize the paragraph and clarify the necessity of Executive Director approval just for the local building code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.



**Section:** 170.2(g), Exception 2

**Purpose:** The specific purpose of removing the word “size” and adding the word “capacity” is to align code language with the nonresidential PV and Battery technical report docketed on CEC website.

**Necessity:** The specific reason of removing the word “size” and adding the word “capacity” is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(g), Exception 5

**Purpose:** The specific purpose of removing "High-rise" and adding "with more than three habitable stories" is to align code language with the nonresidential PV and Battery technical report docketed on CEC website.

**Necessity:** The specific reason is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(g)2Ci

**Purpose:** The specific purpose of change in 170.2(g)-2-B is to reorganize the current structure of language such as replacing “or” with “and” and capitalize the first letter of sentences to correct that Executive Director should confirm the Roof area that is otherwise not available due to compliance with just local building code, while state building code does not need Executive Director approval.

**Necessity:** The reason for this change is to reorganize the paragraph and clarify the necessity of Executive Director approval just for the local building code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(g), Table 170.2-U

**Purpose:** The specific purpose of adding “, Medical Office Building/Clinic” to the “Office, Financial Institution, Unleased Tenant Space” is to align code language with the nonresidential PV and Battery technical report docketed on CEC website. This addition was missed in the 45-day language.

**Necessity:** The change is necessary to correct the building definition and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(h), Equation 170.2-E and Equation 170.2-F

**Purpose:** The specific purpose to add words “MINIMUM” and “USABLE” in the preceding definition for equation is to make it consistent with its definition in the equation.

**Necessity:** The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(h), Equation 170.2-E and Equation 170.2-F

**Purpose:**

The specific purpose of this change is to correct error in referencing the equation number in kW<sub>PVdc</sub> definition by substituting 140.10-A with 170.2-D.

**Necessity:**

The change is necessary to correct referencing errors for internal consistency and general clarity of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(h), Equation 170.2-G

**Purpose:**

The specific purpose to add word “minimum” in the preceding definition for equation is to make it consistent with its definition in the equation.

**Necessity:**

The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(h), Exception 1

**Purpose:** The specific purpose of removing the word “size” and adding the word “capacity” is to align code language with the nonresidential PV and Battery technical report docketed on CEC website.

**Necessity:** The specific reason of removing the word “size” and adding the word “capacity” is to align with the other PV code language, which improves the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(h), Exception 2

**Purpose:** The specific purpose to add words “usable energy” and “minimum” is to make it consistent with its definition in the equation.

**Necessity:** The reason for this change is that it helps improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(h), Table 170.2-V

**Purpose:**

The specific purpose of adding “, Medical Office Building/Clinic” to the “Office, Financial Institution, Unleased Tenant Space” is to align code language with the nonresidential PV

and Battery technical report docketed on CEC website. This addition was missed in the 45-day language.

**Necessity:**

The change is necessary to correct the building definition and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(h), Table 170.2-V

**Purpose:** The specific purpose of adding “Footnote requirements to TABLE 170.2-V: 1. NR = Not Required” is to provide explanation of abbreviation “NR” in table. Previously it was confusing for the stakeholders as it is equal to the abbreviation for Non-Residential.

**Necessity:** The footnote added is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b), Table 180.2-B

**Purpose:** The specific purpose of this change to Table 180.2-B is to clarify that skylights shall utilize an SHGC, as opposed to an RSHGC.

**Necessity:** These changes are necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b), Table 180.2-B

**Purpose:** The purpose of the change to this table is to correct the RSHGC requirement for climate zone 16 to “NA” to match the proposed edits to the 2025 Energy Code.

**Necessity:** These changes are necessary to accurately match what was proposed to be changed for the 2025 Energy Code, and to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b), Table 180.2-B

**Purpose:** The specific purpose of this change is to add the terms “SHGC” and “Minimum VT” to the title of the table.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)1C

**Purpose:** The specific purpose of this change is to add specific references to “Items i and ii”.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)1Ci

**Purpose:** The specific purpose of this change is to remove the term “products” wherever it follows the term “fenestration”.

**Necessity:** This change is necessary to ensure there is no confusion over what constitutes an alteration. Using the term “fenestration product” could give the impression that altering any of the individual components of the window is an alteration when it is in fact a repair. The requirements of 180.2(b)1C are only meant to apply when the entire fenestration is being replaced. This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)1Cii

**Purpose:** The purpose of the changes to this section is to add the word “vertical” next to “fenestration” to clarify the specific type of fenestration product being referred to (i.e., windows) and to further specify that the applicable requirements are of “Section 170.2(a)3”, not “Section 170.2(a)”.

**Necessity:** These changes are necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)1Cii, Exception 1

**Purpose:** The purpose of this change is to rectify an error that would have incorrectly provided an exception from the U-factor requirement when alterations are made to add vertical fenestration area of up to 50 square feet.

**Necessity:** The edit is needed to correct the code and, ensure that the building maintains its energy efficiency when fenestration is added. These changes are necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)2Aivb

**Purpose:** The specific purpose of this change is to replace the list of applicable climate zones with “2 and 8 through 15”.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)2Bi, Exception 3

**Purpose:** The specific purpose of this change is to add the word “not” to clarify that the Exception applies to single package air-cooled commercial unitary ACs or heat pumps with a cooling capacity less than 54,000 Btu/h.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)5Bic

**Purpose:** The specific purpose of this non-substantive editorial change is to update the referenced ASHRAE Sections numbers from Section 7.2 to 7.3 to align with the requirements of 2022 ASHRAE 62.2.

**Necessity:** This non-substantive change is necessary as the sound requirement for fans has moved from Section 7.2 to Section 7.3 in the ASHRAE 2022 version of 62.2, and it was incorporated into the regulatory text via the resolution adopting the regulations. The change is necessary to improve general clarity and maintain internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2(b)4Bivc

**Purpose:** The specific purpose of this change is to delete the referenced Section 160.5(b)4Cid.

**Necessity:** The change to delete the referenced section is necessary as there is no Section 160.5(b)4Cid in the Energy Code. This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 180.2, Table 180.2-E

**Purpose:** The specific purpose of the change is to revise “daylighting” to “daylight responsive” in Table 180.2-E and additionally, to delete extra “1” in the reference to 110.12(b) for “Demand Responsive Controls”.

**Necessity:** The change is necessary to align the usage of the word to the changes of the term “Daylight Responsive Controls” in Section 130.1(d) and to correct the grammatical error. This provides general clarity and internal consistency of the Energy Code.

**Section:** 180.2(c)2

**Purpose:** The specific purpose of this change is to eliminate Executive Director approvals that are unnecessary.

**Necessity:** This change is necessary to simplify the implementation of the Energy Code and to correct that the Executive Director of the Energy Commission should confirm an entity for third-party inspection when the ECC Program already provides such persons to the marketplace for that role. This will help to simplify Energy Code compliance and consistency.

**Section:** 180.2(c), Note

**Purpose:** The specific purpose of this change is to replace the reference to the applicable Residential or Nonresidential ACM Approval Manual with a reference to Section 10-109(c) and 10-116.

**Necessity:** The information in the ACM Approval was incorporated in Section 10-109(c) and 10-116. A separate ACM Approval Manual document was not adopted for 2025. The reference was updated to reference the appropriate section. This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Appendix 1-A

**Purpose:** The specific purpose of this change is to accurately identify and update the title of various standards and documents referenced in the Energy Code.

**Necessity:** These changes are necessary to ensure that all documents intended to be incorporated by reference into the Standards and Reference Appendices are adequately incorporated by reference and to provide clarity to the public about the full title, date, version, and location of the documents incorporated by reference into the Standards or Reference Appendices. These changes are necessary to maintain internal consistency and general clarity of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Appendix 1-A – Cooling Technology Institute

**Purpose:** The specific purpose of this change is to update the contact information for the Cooling Technology Institute.

**Necessity:** The contact information for the Cooling Technology Institute has changed since the 2022 Energy Code. These revisions update the contact information to the most recent address and P.O. Box. This change is necessary to maintain clarity for the public and general clarity of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Appendix 1-A – AHRI Standard 1250 (I-P/2020)

**Purpose:** The specific purpose of this change is to add AHRI Standard 1250 2020 Standard for Performance Rating of Walk-in Coolers and Freezers.

**Necessity:** The change to add AHRI 1250 2020 is necessary as it is one of the referenced documents specified in the Energy Code, Section 120.6. AHRI 1250 provides testing procedures needed to determine specific efficiency for some evaporator equipment for comparison with minimum specific efficiency requirements in Section 120.6. This change is necessary to maintain internal consistency and implementation of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Appendix 1-A – ANSI/IES LM-65-20 (R2023)

**Purpose:** The specific purpose of this change is to add ANSI/IES LM-65-20-(R2023) Approved Method: Life Testing of Single-Based Fluorescent Lamps” as one of the referenced documents in the Reference Appendices, Joint Appendix, JA1 which is incorporated into the Energy Code.

**Necessity:** The change to add ANSI/IES LM-65-20 is necessary as it is one of the referenced documents specified in the Reference Appendices, Joint Appendix, JA1. This change is necessary to maintain internal consistency and implementation of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Appendix 1-B – Alternative Calculation Method (ACM) Approval Manual

**Purpose:** The specific purpose of this change is to remove the reference to the Alternative Calculation Method (ACM) Approval Manual.

**Necessity:** The information in the ACM Approval Manual was incorporated in Sections 10-109 and 10-116. A separate ACM Approval Manual document was not adopted for 2025. Therefore, reference to a separate document is not needed. This change is necessary to maintain internal consistency and implementation of the Energy Code as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA1 Introduction

**Purpose:** The specific purpose is to modify the description of the definitions of JA1 by removing language describing the definitions in this document as, “not defined in Title 24, Part 6,” as there are multiple definitions that exist in both documents.

**Necessity:** This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA1 Definition – ASHRAE Standard 62.2

**Purpose:** The specific purpose is to update the ASHRAE Standard 62.2 version to the latest title and year, 2022, referred to in the 2025 Energy Code.

**Necessity:** This change is necessary as the 2025 Energy Code referred to the latest ASHRAE 62.2-2022 version and aligns with Section 100.0. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA1 Definition – ASHRAE Guideline 36

**Purpose:** The specific purpose of this change is to add a definition of ASHRAE Guideline 36 to incorporate by reference in the Energy Code.

**Necessity:** This change is necessary to ensure that the definition for this term is accurate and not inappropriately limiting. This change is necessary to improve the general clarity and

internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA1 Definition – California Flexible Installation (CFI)

**Purpose:** The specific purpose of this change is to simplify the definition of the term “California Flexible Installation (CFI).” In the previous version, it unnecessarily included a description of CFI1, and this was removed.

**Necessity:** This change is necessary to ensure that the definition for this term is accurate and not inappropriately limiting. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA1 Definition – Compartmentalization

**Purpose:** The specific purpose of this change is to add the definition of “Compartmentalization” to be used in the Reference Appendices.

**Necessity:** This change is necessary as compartmentalization requirements have been added and referenced in Part 6, and the addition of a definition of “Compartmentalization” will help improve general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section** JA1 Definition – IES LM-65

**Purpose:** The specific purpose of this change is to add the IES LM-65 Illuminating Engineering Society document titled, "Approved Method: Life Testing of Single-Based Fluorescent Lamps".

**Necessity:** The change to add the document “IES LM-65” is necessary because it is one of the referenced documents in Joint Appendix JA8, and this change ensure code clarity and consistency, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA1 Definition – Programming Library

**Purpose:** The specific purpose of this change is to add a definition for “programming library,” as it relates to ASHRAE Guideline 36.

**Necessity:** This change is necessary because this definition will ensure consistency in the reference, development, and use of libraries within the context of ASHRAE Guideline 36. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA1 Definition – TDV Energy

**Purpose:** The specific purpose of this change is to remove the definition of the term “TDV Energy,” as this term is no longer used.



**Necessity:** This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

#### **Section:** JA5.3 HVAC System Interface

**Purpose:** The specific purpose of this change is to delete the requirement for occupant controlled smart thermostats (short as “OCST” or commonly referred to as “demand responsive control thermostats” in Section 110.12 of the Energy Code) to have termination labeling to adhere to the NEMA standards (NEMA DC3-2013, Table 5-1).

**Necessity:** The change to delete the OCST labeling requirements for adherence to NEMA DC3-2013 is necessary to increase flexibility for code compliance and to allow thermostat products that use non-NEMA-DC3-2013 termination configurations to be certified for meeting Joint Appendix JA5. This is based on the consideration that there are thermostat products that use non-NEMA-DC3-2013 termination configurations due to design necessity to include capability to communicate information from the controller to the heating/cooling system, and the communication is not possible via the connections configured under NEMA DC3-2013, Table 5-1.

#### **Section:** JA6.1

**Purpose:** The specific purpose of these changes is to remove the section related to the fault indicator display (FID) verification procedure for refrigerant charge verification, because the FID verification procedure is no longer an option for refrigerant charge verification.

**Necessity:** These changes are necessary to ensure that the Joint Appendix does not reference a refrigerant charge verification method that is no longer an option. These changes are necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

#### **Section** JA8.5 Marking

**Purpose:** The specific purpose of this change is to replace the referenced test method, “Elevated Temperature Life Test” and the referenced criteria, “the Energy STAR Product Specification for Lamps Version 2.1”, with the “time to failure” portion of the Department of Energy’s Energy Conservation Standards for Integrated Light-Emitting Diode (LED) lamps, specifically “Appendix BB to Subpart B of 10 CFR Part 430”, and with the criteria specified as, “the ambient temperature for the test is maintained at 45 °C ± 5°C tolerance or at a manufacturer-selected temperature higher than 45 °C with ± 5°C tolerance”.

**Necessity:** The change to update the test requirements related to the elevated temperature marking is necessary to respond to stakeholder feedback. The referenced ENERGY STAR program is scheduled to sunset by the end of 2024, and the program documents, including the program criteria for lamps and the elevated temperature life test, will likely no longer be available to the public on the ENERGY STAR program website. If the documents are not posted on the webpage and manufacturers and testing laboratories cannot access the information related to the test, it would be impossible for the light source products to be tested and certified to meet JA8 of the Energy Code. It is also necessary to

reference the test method for LED lamps, as detailed in the DOE Energy Conservation Standards for Integrated Light-Emitting Diode (LED) lamps (“the DOE Standards”) as the DOE Standard’s test procedure allows for “time to failure” measurements to be taken at an elevated temperature. These changes are necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

### **Section JA8.5 Marking**

**Purpose:** The specific purpose of this change is to delete the reference to “the rated life test specified in the ENERGY STAR Product Specification for Luminaires Version 2.1”.

**Necessity:** The change to delete the reference to the ENERGY STAR's rated life test for luminaires is necessary to respond to stakeholder feedback. The referenced ENERGY STAR program for luminaires is scheduled to sunset effective December 31, 2024. The change to remove the ENERGY STAR's rated life test for luminaires is also to align with the removal of the previously required rated life test of Section JA8.3.5 and the removal of the previous requirements of Section JA8.4.5, which are both under Joint Appendix JA8 of the 2022 Energy Code. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

### **Section JA8.7 Start Time Test Method**

**Purpose:** The specific purpose of this change is to shorten the term "IES LM-79-19" to “IES LM-79”, which is defined in JA1.

**Necessity:** The change to shorten the term to “IES LM-79” is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. "IES LM-79" is used throughout the code as a shorthand description for ANSI/IES LM-79-19.\

### **Section JA8.8 Noise Test Method**

**Purpose:** The specific purpose of this change is to shorten the term "IES LM-79-19" to IES LM-79, which is defined in JA1.

**Necessity:** The change to shorten the term to “IES LM-79” is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. "IES LM-79" is used throughout the code as a shorthand description for ANSI/IES LM-79-19.

### **Section: JA11.3.1 Prescriptive Minimum Shading Requirement**

**Purpose:** The specific purpose of this change is to correct the section number reference from 150.14 to 150.1(c)14.

**Necessity:** This change is necessary to improve the internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.2 Definitions – Compliance Cycling Capacity

**Purpose:** The specific purpose of this change is to remove references to the terms “programmed” and “commissioning”.

**Necessity:** These changes clarify that the BESS is not required to be manually programmed in the factory, and it should be commissioned to meet the compliance cycling capacity during installation of the system onsite. This change is necessary to improve the internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.2 Definitions – Compliance Cycling Capacity

**Purpose:** The specific purpose of this change is to add “as specified on the Certificate of Compliance”.

**Necessity:** This change is necessary to clarify the source documentation of the compliance cycling capacity. This change is necessary for internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.2 Definitions – Reserve Level

**Purpose:** The specific purpose of this change is to correct the control requirement reference to JA12.3.3.1(e).

**Necessity:** This change is necessary for internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3 Control Requirements

**Purpose:** The specific purpose of this change is to add a preamble to clearly specify how the General Control Requirements are applicable to all BESS except JA12.3.3.1(e), which is only applicable to single family residential buildings’ BESS. These changes also clarify the requirement of switching between control strategies.

**Necessity:** In response to stakeholder concerns, these changes are necessary to clarify and remove ambiguity of the BESS control requirements. These changes are necessary improve the internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1 General Control Requirements

**Purpose:** The specific purpose is to separate General Control Requirements within JA12.3.3.1, which applies to all control strategies.

**Necessity:** The reason for adding a new title and changing the numbering is to have better clarity and consistency on the general control requirements, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1 General Control Requirements

**Purpose:** The specific purpose is to restructure the General Control Requirements section to provide correct reference. The section designations were modified in JA12.3.3.1 to reflect the restructuring. The sentence about BESS control strategy was removed from Section (c) and added to Section (a) to provide a general description of control requirements for all sub-sections.

**Necessity:** Changing section numbers is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1(a) Remote Capability

**Purpose:** The specific purpose is to classify the new requirement as “remote capability,” applicable to all control strategies, and to add the ability for BESS to remotely switch between control strategies. The existing requirement for remote capability, which allows remote programming to change the charge and discharge periods, remains unchanged, while the capability to remotely switch between control strategies is added.

**Necessity:** The reason for adding the new subheading of “Remote Capability” is to have better clarity on the General Control Requirements. The existing requirement for remote capability was moved to this section to provide general clarity and internal consistency, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1(b) Charging Behavior

**Purpose:** The specific purpose is to add a new subsection for “Charging Behavior,” which applies to all control strategies. New requirements specify that BESS must charge first from the on-site photovoltaic sources when production exceeds the building’s electric load. If allowed by the load serving entity, BESS may also charge during off-peak TOU hours. Additionally, BESS can charge from the grid during emergency events. These requirements clarify when BESS is permitted to charge from the grid based on the specific circumstances. Allowance for charging from grid in normal conditions are provided during TOU off-peak hours and anytime for emergency events to provide more flexibility of BESS charging behavior.

**Necessity:** The reason for adding the new subheading of “Charging Behavior” is to have better clarity on when charging of BESS happens and the allowance source of charging. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1(c) Discharge Behavior

**Purpose:** The specific purpose is to classify separate requirements for “Discharge Behavior,” applicable to all control strategies.

**Necessity:** The reason for adding the new subheading “Discharge Behavior” is to clarify when charging of BESS happens and the allowed source of charging. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1(c) Discharge Behavior

**Purpose:** The specific purpose to replace the word “demand flexibility” with “demand response” is to clarify that the Demand Response (DR) program does not necessarily include demand flexibility requirements at the current stage of the Energy Code.

**Necessity:** The reason for this change is to provide stakeholders with a clear understanding on the DR control requirement referenced in the Energy Code. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1(c) Discharge Behavior

**Purpose:** The specific purpose of replacing “local utility” with “load serving entity” is to use the more general term of “load serving entity” that entails both local utilities and other kinds of load serving entities. The word “load serving entity” is focused on electricity, while local utilities provide a variety of services.

**Necessity:** The reason for changing “local utility” to “load serving entity” is necessary to improve internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1(d)

**Purpose:** The specific purpose is to remove the sentence about BESS control strategy because it has been added to Section (a).

**Necessity:** This change is necessary to improve internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.1(e)

**Purpose:** The specific purpose is to change the section designation from (e) to (d).

**Necessity:** This change is necessary to improve internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2 Strategy Specific Requirements

**Purpose:** The specific purpose is to add a preliminary introduction to the Strategy Specific Requirements section.

**Necessity:** The reason for adding a preliminary introduction is to reemphasize the freedom to choose from various control strategy options. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.1 Basic Control

**Purpose:** The specific purpose is to remove “default operation mode” from this section.

**Necessity:** This change is necessary to clarify that there is no preferred operation from the CEC’s perspective and BESS can opt to use any one of the listed control strategies. This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.1 Basic Control

**Purpose:** The specific purpose is to remove the phrase, “only from an on-site photovoltaic system,” from this section.

**Necessity:** The reason for removing “only from onsite photovoltaic system” phrase is to clarify that BESS can charge from other energy sources defined by the Energy Code when necessary. This change is necessary to reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** JA12.3.3.2.1 Basic Control

**Purpose:** The specific purpose of adding the phrase, “To qualify for the Basic Control strategy,” is to improve the grammatical structure of the text.

**Necessity:** This change is necessary to improve the internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.1 Basic Control

**Purpose:** The specific purpose of changing section numbers is to provide updated numbering to align with the rest of Energy Code.

**Necessity:** The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.2 Time-of-Use (TOU) Control

**Purpose:** The specific purpose is to remove the phrase, “to qualify for the TOU control, the battery storage system shall be installed in the default operation mode is to allow charging only from an on-site photovoltaic system.”

**Necessity:** The reason for this change is to clarify that there is no preferred operation mode from the CEC’s perspective, that BESS can opt to use any one of the listed control

strategies, and that BESS can charge from other energy sources defined by the Energy Code when necessary. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.2 Time-of-Use (TOU) Control

**Purpose:** The specific purpose of adding the phrase, “To qualify for the TOU Control strategy,” is to improve the grammatical structure of the text.

**Necessity:** This change is necessary to improve the internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.2 Time-of-Use (TOU) Control

**Purpose:** The specific purpose is to change the term “programmed” to “commissioned”.

**Necessity:** The reason for this change is to avoid confusion with unnecessary BESS software programming. Instead, BESS should be commissioned for use during installation. The change is necessary to improve the internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.2 Time-of-Use (TOU) Control

**Purpose:**

The specific purpose of changing section numbers is to provide updated numbering to align with the rest of Energy Code.

**Necessity:**

The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.3 Advanced Demand Flexibility Control

**Purpose:** The specific purpose is to remove the phrase “by default” from this section.

**Necessity:** The reason for removing this language is to clarify that there is no preferred operation mode from the CEC’s perspective, that BESS can opt to use any one of the listed control strategies, and that BESS can charge from any other energy sources defined by the Energy Code when necessary. This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.3 Advanced Demand Flexibility Control

**Purpose:** The specific purpose of adding the phrase “load serving entity” is to provide a more general term that entails both local utilities and other kinds of load serving entities.

**Necessity:** This change is necessary to improve the internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.3 Advanced Demand Flexibility Control

**Purpose:** The specific purpose of replacing the word “flexibility” with “response” is to clarify that the Demand Response (DR) program does not necessarily include demand flexibility requirements at the current stage of the Energy Code.

**Necessity:** The reason for this change is to provide stakeholders with a clear understanding of the DR control requirement referenced in Energy Code. This change is necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.3 Advanced Demand Flexibility Control

**Purpose:**

The specific purpose of changing section numbers is to provide updated numbering to align with the rest of Energy Code.

**Necessity**

The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.4 Controls for Separate Battery Energy Storage Systems

**Purpose:** The specific purpose of adding the phrase “When a BESS” and restructuring this section is to improve the grammatical structure of the text.

**Necessity:** This change is necessary to improve the internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.4 Controls for Separate Battery Energy Storage Systems

**Purpose:** The specific purpose is to remove “by default” from this section.

**Necessity:** This change is necessary to clarify that there is no preferred operation mode from the CEC’s perspective, that BESS can opt to use any one of the listed control strategies, and that BESS can charge from other energy sources defined by the Energy code when necessary. This change is necessary to improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.



**Section:** JA12.3.3.2.4 Controls for Separate Battery Energy Storage Systems

**Purpose:** The specific purpose of changing “at the onset” to “during the” is to allow charging of BESS not just at the start of the lowest priced TOU hours but anytime during the lowest priced TOU hours.

**Necessity:** The reason for changing “at the onset” to “during the” is to provide stakeholders with a clear understanding of the off-peak time charging and discharging of BESS. This change is necessary because it reduces excessive energy use via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** JA12.3.3.2.4 Controls for Separate Battery Energy Storage Systems

**Purpose:** The specific purpose of adding the phrase “load serving entity” is to provide more general term that entails both local utilities and other kinds of load serving entities.

**Necessity:** This change is necessary to improve the internal consistency and general clarity with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.4 Controls for Separate Battery Energy Storage Systems

**Purpose:** The specific purpose of removing the word “flexibility” and adding “response” is to clarify that the Demand Response (DR) program does not necessarily include demand flexibility.

**Necessity:** The reason for this change is to provide stakeholders with a clear understanding of the DR control requirement referenced in Energy Code. This change is necessary to improve the internal consistency and general clarity with the rest of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.4 Controls for Separate Battery Energy Storage Systems

**Purpose:** The specific purpose of changing section numbers is to provide updated numbering to align with the rest of Energy Code.

**Necessity:** The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.5 Alternative Control Approved by the Executive Director

**Purpose:** The specific purpose of changing “PV” to “Photovoltaic” is to provide the complete name instead of an abbreviation. The reason for changing “PV” to “Photovoltaic” is to provide better clarity; deleting the abbreviation ensures there is less ambiguity for the reader.

**Necessity:** This change is intended to provide internal consistency and general clarity for the rest of the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.3.3.2.5 Alternative Control Approved by the Executive Director

**Purpose:** The specific purpose of changing section numbers is to provide updated numbering that align with the rest of Energy Code.

**Necessity:** The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.4 Enforcement Agency

**Purpose:** The specific purpose of replacing the word “programmed” with “commissioned” is so that it is clear BESS is not required to be manually programmed in the factory, instead, “commissioned” makes clear that BESS may be “commissioned” to comply with proper cycling capacity during installation of the system onsite.

**Necessity:** The reason for this change is to provide consistency and general clarity of the compliance verified by local enforcement agency with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.4 Enforcement Agency

**Purpose:** The specific purpose of adding “and the compliance cycling capacity” is to ensure that the enforcement agency will inspect the compliance cycling capacity in addition to control strategy and use that information in the certificate of compliance document. The enforcement agency is responsible for reviewing certificates received and must

**Necessity:** The reason for this change is to provide internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.4 Enforcement Agency

**Purpose:** The specific purpose of changing section numbers is to provide updated section number citations to align with the rest of the Energy Code. Failing to update the section number would make compliance and enforcement of the Energy Code difficult.

**Necessity:** The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.4.5 Price Optimization Control

**Purpose:** The specific purpose is to remove this section, and the Price Optimization Control proposed in the 45-day language. Subsequent sections of the JA12 are renumbered.

**Necessity:** Based on stakeholder feedback, staff determined that more analysis and stakeholder engagement is needed before a price optimization control strategy can be used in the Energy Code.

**Section:** JA12.5 System Labeling – Single Family Residential Buildings:

**Purpose:** The specific purpose is to remove this section and the requirement for system labeling proposed in the 45-day language. Subsequent sections of JA12 were also renumbered.

**Necessity:** Based on stakeholder feedback, staff determined the labeling requirement is not necessary, and the information provided by the Certificate of Installation is sufficient for verification purposes.

**Section:** JA12.5 Certification Documentation Requirements

**Purpose:** The specific purpose of replacing the term “other characteristics addressed in JA12.3.2” with “identification as a field assembled or integrated BESS” is to clarify the characteristics for JA12 BESS in the certification documentation requirements section. This information is important to find out the type of BESS submitted to CEC for JA12 certification.

**Necessity:** The reason for this change is to make sure that the JA12 applicant is aware what characteristics of the BESS are required to be mentioned on the spec sheet. Also, the identification for the BESS as integrated or field assembled is important so the applicant can use the appropriate JA12 forms. All these necessary changes are necessary to provide consistency and general clarity of the compliance verified by local enforcement agency with the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.5 Certification Documentation Requirements

**Purpose:** The specific purpose of adding “For all buildings” and “compliance cycling capacity” is to provide clarity on the application and requirements of the JA 12 certification process.

**Necessity:** The reason for this change is to provide a clearer description of how the requirements apply for JA 12 certification; the language is necessary to ensure that the requirements clearly apply to all building types and includes all necessary information consistent with Section 140.10(b), Exception 5 to Section 150.1(c)14, Exception 5 to Section 170.2(f), and Section 170.2(h). These changes ensure improved compliance and, as a result, supports the CEC’s general mandate to reduce the unnecessary consumption of energy consistent with California Public Resources Code 25213 and 25402. Additionally, the changes provide internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.5 Certification Documentation Requirements

**Purpose:** The specific purpose to add “software operation of” is to provide clarity on language used for better understanding of the stakeholders on how cycling control strategy should be addressed in the BESS certification document. The software operation of cycling control strategy information shall be submitted to CEC to get JA12 to make sure ratio between compliance cycling capacity and usable capacity can be obtained after BESS is commissioned.

**Necessity:** The reason for this change is to provide internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.5 Certification Documentation Requirements

**Purpose:** The specific purpose of adding “the programming of” and “during the commissioning” is to provide clarity on how the 72-hour reset requirement should be described in the BESS certification document. This information shall be submitted to CEC to get JA12 certification when BESS is commissioned.

**Necessity:** The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA12.5 Certification Documentation Requirements

**Purpose:** The specific purpose of changing section numbers is to provide updated numbering to align with the rest of Energy Code.

**Necessity:** The reason for this change is for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA13.3.2

**Purpose:** The specific purpose of this change is to remove the version number from the Northwest Energy Efficiency Alliance (NEEA) Advanced Water Heater Specification.

**Necessity:** The version number is part of the definition for Northwest Energy Efficiency Alliance (NEEA) Advanced Water Heater Specification; therefore the version number is unnecessary. This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA15.1

**Purpose:** The specific purpose of this non-substantive change is to correct the reference to the electric readiness requirements to Section 160.9(f). The prior language incorrectly cited to Section 160.9(e) which could result in confusion.

**Necessity:** The change was incorporated into the regulatory text via the resolution adopting the final regulations and it is necessary for internal consistency and general clarity for the rest of Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** JA17 Title

**Purpose:** The purpose of this change is to delete “HRV/ERV” in the title.

**Necessity:** This change is necessary as FID requirements in JA17 apply to HRV/ERVs, as well as to balanced or supply-only systems that are required under the exceptions within 150.0(o)1Civa1 or 160.2(b)2Axia1. This change is reasonably necessary to ensure reliable

reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section: JA17.1**

**Purpose:** The purpose of this change is to add balanced and supply-only ventilation systems to the introduction context.

**Necessity:** This change is necessary as FID requirements in JA17 apply to HRV/ERVs, as well as to balanced or supply-only systems that are required under the exceptions within 150.0(o)1Civa1 or 160.2(b)2Axia1. This change is reasonably necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section: JA18.1**

**Purpose:** The purpose of this change is to describe the requirements for controls manufacturers to certify to the Energy Commission that their programming libraries meet Guideline 36.

**Necessity:** This edit is necessary to ensure that HVAC control systems with Direct Digital Controls (DDC) operate efficiently and effectively by using programming from a certified library based on ASHRAE Guideline 36. This change is reasonably necessary to ensure reliable reductions in wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Sections 25213 and 25402.

**Section: JA18.2**

**Purpose:** The purpose of this change is to ensure that the certification submittal requirements that are described in section JA18.3 are properly followed. This is necessary to clarify the correct joint appendix sections are properly referenced.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section: JA18.4**

**Purpose:** The purpose of the change in this section is to ensure that the programming library under review includes comprehensive control logic for all sections as specified in ASHRAE Guideline 36, as outlined in Table JA18.3-1.

**Necessity:** This is necessary to clarify the correct joint appendix and table sections are properly referenced. This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section: JA18.5**

**Purpose:** The purpose of this section is to ensure that companies seeking certification with the California Energy Commission adhere to the legal and regulatory standards set forth in

Title 24, Part 6, Sections 100.0(h) and 120.2(i). Additionally, “Model Name” was changed to “Product Line” and “Model Number” was changed to “Library Version” to align with the ASHRAE Guideline 36 requirements.

**Necessity:** This section is necessary to ensure the accuracy and integrity of information provided by companies seeking certification with the California Energy Commission. This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** RA2.2, Table RA2-5

**Purpose:** The purpose of this change is to add “and dwelling unit compartmentalization” in the measure title for the building envelope air leakage column.

**Necessity:** This change is necessary to help indicate and clarify that this Section covers compartmentalization requirements for multifamily dwelling units and aligns with the requirements as specified in Section 160.2(b)2Aivb. This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** RA2.2, Table RA2-5

**Purpose:** This change revises the language in the building envelope air leakage and dwelling unit compartmentalization row to specify that compliance credit can be taken for single-family homes.

**Necessity:** This change clarifies that compliance credit for reduced building air leakage can only be earned in single-family homes. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** RA2.2, Table RA2-1

**Purpose:** The specific purpose of this change is to remove “Installation of Fault Indicator Display” from the summary of measure requiring field verification and diagnostic testing since this requirement has been removed in the 2025 code cycle update. The option to comply with refrigerant charge verification requirements using the FID method was not utilized according to CEC data. Therefore, we removed the underutilized FID method to reduce code complexity while focusing on more readily used methods

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** RA2.8

**Purpose:** The specific purpose of this change is to be consistent with the requirements in 10-103.3 and address outstanding Energy Code abuse issues by restricting the use of sample-groups to newly constructed buildings only where these issues are more easily discovered.

**Necessity:** This change is reasonably necessary to restrict the use of sample-groups to newly constructed residential buildings. This restriction is necessary to address established issues regarding the use of sampling in additions and alterations to existing buildings. These issues include grouping together dissimilar building (which is not permitted), falsification of data entry results into the data registry, and lack of legitimate field verification and diagnostic testing for installations in additions and alterations. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** RA3.2.3.1.5

**Purpose:** The specific purpose of these changes is to revise the language for clarity by removing the word “either” from the section. The removal makes clear that on-site observation procedures, as described in RA 3.2.3.2 are necessary to be able to certify the Certificate of Installation. There is no other available option.

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** RA3.4.2

**Purpose:** The specific purpose of these changes is to remove the section related to the fault indicator display (FID) verification procedure for refrigerant charge verification because the FID verification procedure is no longer an option for refrigerant charge verification. The option to comply with refrigerant charge verification requirements using the FID method was not utilized according to CEC data. Therefore, we removed the underutilized FID method to reduce code complexity while focusing on more readily used methods

**Necessity:** These changes are necessary to improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. and ensure that the Joint Appendix does not reference a refrigerant charge verification method that is no longer an option.

**Section:** RA3.6.3

**Purpose:** The specific purpose of this change is to provide a non-substantive editorial change to the correct section number and remove the word “mandatory.” It is prescriptively required that an ECC-Rater inspect the pipe insulation of the water heating plant and horizontal supply header and return piping. Therefore, use of the word mandatory is unnecessary and may confuse the reader.

**Necessity:** This non-substantive change was incorporated into the regulatory text via the resolution adopting the regulations and is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section: RA3.8.3**

**Purpose:** The specific purpose of this change is to delete the note on compartmentalization. This change is necessary as there was an addition of a definition of “Compartmentalization” in JA1. Because the definition is used several times, the addition of a definition is more helpful to the reader than including a note once.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency with the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section: NA1.1, Table NA1-1**

**Purpose:** The purpose of this change is to update the measure title on the 6<sup>th</sup> row of the table NA1-1 from “Building Envelope Air Leakage” to “Dwelling unit Compartmentalization.”

**Necessity:** This change is necessary to help indicate and clarify that this Section covers compartmentalization requirements for multifamily dwelling units and aligns with the requirements as specified in Section 160.2(b)2Aivb. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section: NA1.8**

**Purpose:** The specific purpose of this change is to be consistent with the requirements in 10-103.3 and address outstanding Energy Code abuse issues by restricting the use of sample-groups to newly constructed buildings only where these issues are more easily discovered.

**Necessity:** This change is reasonably necessary to restrict the use of sample-groups to newly constructed residential buildings. These issues include grouping together dissimilar building (which is not permitted), falsification of data entry results into the data registry, and lack of legitimate field verification and diagnostic testing for installations in additions and alterations. This restriction is necessary to address established issues regarding the use of sampling in additions and alterations to existing buildings. This change will provide needed clarification and consistency within the Energy Code.

**Section: NA2.3**

**Purpose:** The purpose of this change is to update the title that includes “field verification and diagnostic testing of multifamily dwelling unit enclosures to “field verification and diagnostic testing of multifamily dwelling unit compartmentalization.”

**Necessity:** This change is necessary to indicate and help clarify NA2.3 includes test procedures to measure multifamily dwelling unit compartmentalization requirements. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.



**Section: NA2.3.1**

**Purpose:** The purpose of this change is to revise language in the purpose and scope statement, including the test procedures for multifamily dwelling units. This revision clarifies that NA2.3 includes the test procedures required to measure compartmentalization in multifamily dwelling units. These changes clarify and ensure air leakage is measured correctly, thereby reducing wasted energy.

**Necessity:** These changes address general clarity and reduce uneconomic energy use as required by California Public Resources Code 25402 and California Government Code Section 11349.

**Section: NA2.3.3**

**Purpose:** The specific purpose of this change is to delete the note on compartmentalization. This change is necessary as there was an addition of a definition of “Compartmentalization” in JA1 for general clarity and internal consistency of the Energy Code.

**Necessity:** This change is necessary as there was an addition of a definition of “Compartmentalization” in JA1. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section: NA7.6.1**

**Purpose:** The specific purpose of this change is to replace the term “automatic daylighting controls” with the new term “daylight responsive controls”. Using “daylight responsive controls” aligns with the terms used by IECC and in general is a more appropriate term to use for the associated standards.

**Necessity:** The change to replace the old term with the new term is necessary to reflect the new term used in Section 130.1(d) and Section 160.5(b)4D. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section: NA7.6.1.1(b)**

**Purpose:** The specific purpose of this change is to replace the term “automatic daylighting controls” with the new term “daylight responsive controls”. Using “daylight responsive controls” aligns with the terms used by IECC and in general is a more appropriate term to use for the associated standards.

**Necessity:** The change to replace the old term with the new term is necessary to reflect the new term used in Section 130.1(d) and Section 160.5(b)4D. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section:** NA7.6.1.1(c)

**Purpose:** The specific purpose of this change is to replace the term “automatic daylighting controls” with the new term “daylight responsive controls”. Using “daylight responsive controls” aligns with the terms used by IECC and in general is a more appropriate term to use for the associated standards.

**Necessity:** The change to replace the old term with the new term is necessary to reflect the new term used in Section 130.1(d) and Section 160.5(b)4D. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section:** NA7.6.1.4(b)2

**Purpose:** The specific purpose of this change is to replace the term “automatic daylighting controls” with the new term “daylight responsive controls”. Using “daylight responsive controls” aligns with the terms used by IECC and in general is a more appropriate term to use for the associated standards.

**Necessity:** The change to replace the old term with the new term is necessary to reflect the new term used in Section 130.1(d) and Section 160.5(b)4D. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**Section** NA7.6.1.5(b)2

**Purpose:** The specific purpose of this change is to replace the term “automatic daylighting controls” with the new term “daylight responsive controls”. Using “daylight responsive controls” aligns with the terms used by IECC and in general is a more appropriate term to use for the associated standards.

**Necessity:** The change to replace the old term with the new term is necessary to reflect the new term used in Section 130.1(d) and Section 160.5(b)4D. It also ensures and improves general clarity and internal consistency with the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16

**MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS:**

The California Energy Commission (CEC) has determined that this action will not result in a local mandate on local agencies or school districts.

**OBJECTIONS OR RECOMMENDATIONS MADE REGARDING THE PROPOSED REGULATION(S):**

All responses to public comments, including acceptance of recommendations and justification when recommendations were not accepted, are hereby incorporated by reference and included in the final rulemaking file.

## **DETERMINATION OF ALTERNATIVES CONSIDERED AND EFFECT ON PRIVATE PERSONS:**

The CEC determined pursuant to Government Code Section 11346.9(a)(4) that no alternative before it would be more effective in carrying out the purpose for which this action is proposed; would be as effective or less burdensome to affected persons than the adoption of the proposed regulation; or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

Except as discussed in the summary and response to comments, no alternatives were recommended.

## **REJECTED PROPOSED ALTERNATIVE THAT WOULD LESSEN THE ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES:**

The CEC determined pursuant to Government Code Section 11346.9(a)(5) that not alternative before it would be more effective in carrying out the purpose for which this action is proposed no alternative would be as effective as and less burdensome to affected persons than the adoption of the proposed regulation; or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

The adopted regulations will not have a significant adverse economic impact on small businesses and no alternatives were proposed that would lessen any adverse economic impact on small businesses except as discussed in the summary and response to comment.