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**CALIFORNIA ENERGY COMMISSION**

715 P Street  
Sacramento, California 95814

[energy.ca.gov](http://energy.ca.gov)

CEC-057 (Revised 1/21)

**INITIAL STATEMENT OF REASONS****PROPOSED REVISIONS TO THE CALIFORNIA  
BUILDING ENERGY EFFICIENCY STANDARDS****2025 CALIFORNIA ADMINISTRATIVE CODE  
2025 BUILDING ENERGY EFFICIENCY STANDARDS  
CALIFORNIA CODE OF REGULATIONS, TITLE 24,  
PART 1, CHAPTER 10, and PART 6  
(2025 CALIFORNIA ENERGY CODE)****Docket No. 24-BSTD-01****INTRODUCTION**

Notice is hereby given that the California Energy Commission (CEC) proposes to adopt changes to the Building Energy Efficiency Standards contained in the California Code of Regulations (CCR), Title 24, Part 6 (also known as the California Energy Code) and associated administrative regulations in Title 24, Part 1, Chapter 10, after considering all recommendations, comments, and objections regarding the proposed action. A description of the proposed standards is provided in the Informative Digest below.

**INFORMATIVE DIGEST**

The Warren-Alquist Act (California Public Resources Code Sections 25001 et seq.) establishes the CEC as California's primary energy policy and planning agency. Public Resource Code Sections 25213, 25402, 25402.1, 25402.4, 25402.5, 25402.8, 25910, 25942, and 25943 mandate and/or authorize that the CEC adopt rules and regulations, as necessary, to reduce the inefficient consumption of energy and water in newly constructed buildings and certain additions and alterations to existing buildings.

One of the ways the CEC satisfies this requirement is through the California Energy Code (California Code of Regulations, Title 24, Part 6) found in the California Building Standards Code, which are adopted pursuant to Health and Safety Code Sections 18930, 18934, and 18935 and, where applicable, the California Environmental Quality Act, California Public Resources Code Sections 21000 et seq. The Energy Code includes all the energy efficiency requirements applicable to newly constructed buildings and additions and alterations to existing buildings. As a portion of the California Building Code (Title 24), the Energy Code (Title 24, Part 6) follows the same three-year update cycle.

The CEC is initiating its next triennial rulemaking proceeding for updating the Energy Code, and the CEC proposes to adopt amendments for publication in 2024 with an effective date of January 1, 2026.

The proposed amendments to the 2025 Energy Code would:

- Introduce prescriptive heat pump requirements for select nonresidential existing building types.
- Update prescriptive heat pump requirements for newly constructed single-family, multifamily, and select nonresidential building types.
- Update solar photovoltaic system standards for residential, nonresidential and hotel and motel buildings.
- Update energy storage standards for high-rise residential, nonresidential, and hotel and motel buildings.
- Increase envelope efficiency standards for residential and nonresidential buildings.
- Increase space conditioning system efficiency and control standards for residential and nonresidential buildings.
- Improve indoor air quality requirements for multifamily buildings by requiring balanced or supply-only ventilation systems and compartmentalization leakage testing, as well as a prescriptive standard for energy/heat recovery ventilation systems with a fault indicatory display.
- Introduce prescriptive heat pump requirements for individual domestic water heating systems serving individual dwelling units in low rise multifamily buildings.
- Establish electric-ready requirements for multifamily domestic water heating systems.
- Simplify standards for multifamily buildings.
- Introduce options for improving efficiency of pool and spa water heating systems.
- Increase daylighting control requirements for nonresidential buildings.
- Increase efficiency standards for laboratories.
- Increase efficiency requirements for controlled environment horticulture buildings.
- Increase efficiency requirements for nonresidential refrigeration systems.
- Establish industrial pipe insulation requirements.
- Establish electric-ready requirements for commercial kitchens. Make general improvements to the clarity and consistency of existing provisions.
- Relocate portions of the Alternative Calculation Method Approval Manual pertaining to the application, approval, updates, expiration, and decertification of third-party compliance software to Title 24, Part 1.
- Relocate field verification and diagnostic testing requirements from Title 20 to Title 24, Part 1.
- Make general improvements to the clarity and consistency of existing provisions.

These amendments are significant to the State of California in that they support State clean energy goals, policies, and legislation. These amendments will increase the deployment and grid benefits of on-site renewable energy generation, increase flexibility of energy demand, reduce carbon emissions from new buildings (building decarbonization), reduce growth in energy demand, and ensure that California buildings are as energy efficient as possible while also being technically feasible and cost-effective.

**STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS**

Government Code Section 11346.2(b)(1) requires “a statement of the specific purpose of each adoption, amendment, or repeal, the problem the agency intends to address, and the rationale for the determination by the agency that each adoption, amendment, or repeal is necessary to carry out the purpose and address the problem for which it is proposed. The statement shall enumerate the benefits anticipated from the regulatory action, including the benefits or goals provided in the authorizing statute.”

The problem that the CEC seeks to address in adopting building energy efficiency standards is enumerated in its enabling statute. The legislative findings in the Warren-Alquist Act includes, in part, the following:

**§ 25000.1(a)** The Legislature further finds and declares that, in addition to their other ratepayer protection objectives, a principal goal of electric and natural gas utilities' resource planning and investment shall be to minimize the cost to society of the reliable energy services that are provided by natural gas and electricity, and to improve the environment and to encourage the diversity of energy sources through improvements in energy efficiency and development of renewable energy resources, such as wind, solar, and geothermal energy.

**§ 25001.** The Legislature hereby finds and declares that electrical energy is essential to the health, safety and welfare of the people of this state and to the state economy, and that it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection.

**§ 25002.** The Legislature further finds and declares that the present rapid rate of growth in demand for electric energy is in part due to wasteful, uneconomic, inefficient, and unnecessary uses of power and a continuation of this trend will result in serious depletion or irreversible commitment of energy, land and water resources, and potential threats to the state's environmental quality.

**§ 25007.** It is further the policy of the state and the intent of the Legislature to employ a range of measures to reduce wasteful, uneconomical, and unnecessary uses of energy, thereby reducing the rate of growth of energy consumption, prudently conserve energy resources, and assure statewide environmental, public safety, and land use goals.

**§ 25008.** It is further the policy of the state and the intent of the Legislature to promote all feasible means of energy and water conservation and all feasible uses of alternative energy and water supply sources.

While the specific purposes of individual amendments are described below, the overall purpose of the adoption of new amendments to the Energy Code is “to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, including the energy associated with the use of water, and to manage energy loads to help maintain electrical grid reliability” consistent with the express statutory authority and direction in §25402, which benefits the state by slowing demand growth, reducing depletion of resources, improving reliability, minimizing costs, and mitigating threats to the state’s environmental quality – that is, by directly addressing the problems the legislature observed when creating the CEC. Based on the evidence in the record, the CEC has determined that the proposed changes are necessary to provide these benefits by establishing or improving standards for building energy efficiency and improving the likelihood of successful deployment of building design and construction measures that directly cause or indirectly enable improved efficiency during occupancy and operation.

Evidence in the record further shows the proposed efficiency standards to be technically feasible for buildings in California, cost effective where they are proposed to be required, and will save significant energy on an annual statewide basis.

## **GENERAL PURPOSE AND NECESSITY STATEMENT**

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

**Specific Purpose:** The purpose of this change is to help clarify the implementation of the new section in the Energy Code, Title 24, Part 1, Section 10-103.3. This is accomplished by replacing "HERS" with "ECC-" or "field verification and diagnostic testing" where appropriate and replacing the reference to the HERS regulations (Title 20) with a reference to Title 24, Part 1, Section 10-103.3. These changes appear throughout the Parts 1 and 6 (including the Reference Appendices: Joint Reference Appendix, Residential Reference Appendix, and Nonresidential Reference Appendix) of the Energy Code and 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 with the new section, Title 24, Part 1, Section 10-103.3. This change is consistent with the requirements of California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

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

**Specific Purpose:** The purpose of this change 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

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

**Specific Purpose:** The purpose of this change 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: rewording the edits in the entire code from “exemptions,” “exempt,” and “exempted” being replaced by “not required.” 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

## **TITLE 24, PART 1, CHAPTER 10 PROPOSED AMENDMENTS**

**Section:** Section 10-102

**Specific Purpose:** Update definition of Alternative Calculation Method to add reference to 10-116.

**Necessity:** This definition was updated due to the addition of Section 10-116 Third Party Alternative Calculation Method Compliance Software, which was moved from the ACM Approval Manual to the Energy Code. The definition now includes references to Section 10-109 and 10-116.

**Section:** Section 10-102

**Specific Purpose:** The purpose of this change is to aid in the implementation of new regulations in Title 24, Part 1, Section 10-103.3 by adding several new definitions.

**Necessity:** This change is necessary to help implement an improved Energy Code Compliance program. The new definitions (Energy Code Compliance (ECC), ECC-Provider, ECC-Rater, and ECC-Rater Company) assign separate responsibilities and requirements to each ECC participant, increasing the robustness of the overall program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** Section 10-102

**Specific Purpose:** The purpose of this change is to remove definitions associated with the Home Energy Rating System (HERS) program from within the Energy Code.

**Necessity:** This change is necessary to help implement an improved Energy Code Compliance program. The change clarifies the ECC Program is separate from the previous program. The name clarification may improve the reputation of the program and encourage widespread program adoption. Widespread adoption and broad use of the program would help to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** Section 10-102

**Specific Purpose:** The purpose of this change is to aid in the implementation of new regulations in Title 24, Part 1, Section 10-103.3 by adding a new definition.

**Necessity:** This change (adding a definition of the Triennial Code Cycle) is necessary to help implement an improved Energy Code Compliance program. The ECC-Provider may submit an updated application that responds to a newly adopted Energy Code during the triennial code cycle. This definition helps to allow a more streamline application process for existing ECC-Providers. This benefits the CEC in accomplishing its responsibility under Statute 25402.

**Section:** 10-102 Energy Budget

**Specific Purpose:** Add new definition for Energy Budget.

**Necessity:** Compliance manager requirements from the ACM Approval manual were moved into sections 10-109 and 10-116 of the Energy Code. These requirements included references to the Energy Budget. The definition was copied from the Energy Code Part 6 to ensure that the terms were defined when used on 10-109 and 10-116.

**Section:** 10-102 Long-Term System Cost

**Specific Purpose:** Add new definitions for Long-Term System Cost.

**Necessity:** Compliance manager requirements from the ACM Approval manual were moved into sections 10-109 and 10-116 of the Energy Code. These requirements included references to the Long-Term System Cost. The definition was copied from the Energy Code Part 6 to ensure that the terms were defined when used on 10-109 and 10-116.

**Section:** 10-102 Source Energy

**Specific Purpose:** Add new definitions for Source Energy.

**Necessity:** Compliance manager requirements from the ACM Approval manual were moved into sections 10-109 and 10-116 of the Energy Code. These requirements included references to the Source Energy. The definition was copied from the Energy Code Part 6 to ensure that the terms were defined when used on 10-109 and 10-116.

**Section:** 10-103(a)3Avi

**Purpose:** The specific purpose of this change is to correct a minor grammatical error. Where we previously said “included” language should have read “including.”

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

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

**Purpose:** The specific purpose of this change is to update the referenced publication. Where we previously said “IES Lighting Handbook, 10<sup>th</sup> Edition, 2011” is updated to “IES Lighting Library.”

**Necessity:** This change is necessary to ensure the referenced publication is up to date with the Energy Code.

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

**Purpose:** The purpose of the change is to correct a typographical error, remove minor criteria for Acceptance Test Technician Certification Program (ATTCP) Provider building department surveys, and add an alternative to allow ATTCP shadow audits of Acceptance Test Technicians (ATTs) to occur at ATTCP training facilities.

**Necessity:** These changes are necessary to ensure that the provisions are clear of errors and the language matches the intent. The change to remove the criteria that ATTCP must perform building department surveys is because this is out of scope of ATTCP responsibilities and is not enforceable. An alternative was added to the ATTCP quality assurance shadow audit requirements which allows the ATTCP to perform shadow audits at their training facilities. This was in response to comments received by the ATTCP community where they mentioned that performing shadow audits at the job site is not always practical and an alternative to provide flexibility is needed.

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

**Purpose:** The purpose of the change is to correct a typographical error, remove minor criteria for Acceptance Test Technician Certification Program (ATTCP) Provider building department surveys, and add an alternative to allow ATTCP shadow audits of Acceptance Test Technicians (ATTs) to occur at ATTCP training facilities.

**Necessity:** These changes are necessary to ensure that the provisions are clear of errors and the language matches the intent. The change to remove the criteria that ATTCP must perform building department surveys is because this is out of scope of ATTCP responsibilities and is not enforceable. An alternative was added to the ATTCP quality assurance shadow audit requirements which allows the ATTCP to perform shadow audits at their training facilities. This was in response to comments received by

the ATTCP community where they mentioned that performing shadow audits at the job site is not always practical and an alternative to provide flexibility is needed.

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

**Specific Purpose:** The purpose of this addition is to establish the scope of the Energy Code Compliance (ECC) program as it applies to ECC-Providers, ECC-Raters, and ECC-Rater Companies within Title 24 of the Energy Code. As the primary regulated entities within the FV&DT the entities must be specifically mentioned, and roles distinguished to properly regulate the conduct and expectations of each.

**Necessity:** This addition is necessary to encapsulate the ECC program within the Energy Code to better manage issues and address necessary changes to code on a triennial basis. Previous regulations did not include rater companies as a regulated entity, rater companies have emerged as an important party in the FV&DT program, therefore should be included in updated regulations. Frequent stakeholder engagement and changing building energy efficiency requirements have direct bearing on the FV&DT program, therefore regular updates within the triennial Energy Code updates would ensure the FV&DT program is up to date with current regulations while responding to stakeholder concerns on how best to implement the program. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide a means for the CEC to take disciplinary action against ECC-Providers, ECC-Raters and ECC-Rater Companies by establishing the general provisions for conflict of interest and prohibitions as a trigger to take prescribed actions.

**Necessity:** This addition is necessary to identify the prohibited actions under the ECC program for all parties: the CEC, ECC-Providers, ECC-Raters, and ECC-Rater Companies. A disciplinary system is necessary to ensure integrity within the FV&DT program and maintain the CEC's reputation as a fair body to the public. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the conflicts of interest as they pertain to ECC-Providers, ECC-Raters, and ECC-Rater Companies, as well as address this issue of conflicted data being entered into the ECC-Provider data registries.

**Necessity:** This addition is necessary to provide clear limits and remedies to all parties: the CEC, ECC-Providers, ECC-Raters, and ECC-Rater Companies. Clear limits and remedies encourage FV&DT parties to conduct and report accurate field verification and diagnostic tests free from bias from outside parties or other FV&DT parties. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to specify the conflicts of interest as they pertain to ECC-Providers, ECC-Raters, and ECC-Rater Companies.

**Necessity:** This addition is necessary to provide clear limits to all parties: the CEC, ECC-Providers, ECC-Raters, and ECC-Rater Companies.

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

**Specific Purpose:** The purpose of this addition is to prevent the ECC-Providers from applying undue influence on ECC-Raters or ECC-Rater Companies.

**Necessity:** This addition is necessary to ensure that the ECC-Raters provide a true and unbiased field verification and diagnostic test regardless of pressure from the ECC-Provider. Providers are responsible for auditing and verifying data submitted by ECC Raters and companies, therefore they must be completely independent from the data produced. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to prevent builders, designers and subcontractors from influencing the field verification and diagnostic testing performed by the ECC-Rater.

**Necessity:** This addition is necessary because in most cases the ECC-Rater is hired by the builder or subcontractor and not the homeowner and thus undue influence can otherwise be applied. The influence could result in an inaccurate field verification test, but also avoids the appearance of partiality. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)1Aiii, 10-103.3(b)1Aiiia, 10-103.3(b)1Aiiib

**Specific Purpose:** The purpose of this addition is to make clear to all parties (CEC, ECC-Providers, ECC-Raters, and ECC-Rater Companies) what is meant by financial

interest as used in Section 10-103.3(b)1Aii. These additions set an investment and ownership limit on an ECC-Rater in a business for purposes of determining a financial interest. The purpose of these additions is to keep ECC-Rater and ECC-Rater Companies from being controlled by other business interests needing field verifications or diagnostic testing services through ownership structures or debt agreements.

**Necessity:** This addition is necessary to create a fair and level playing field for all affected parties (ECC-Providers, ECC-Raters, and ECC-Rater Companies). No affected party should benefit or be influenced by a financial interest that requires field verification or diagnostic testing. The proposed changes are necessary to document past inquiries regarding this limit and to allow some minor investments by ECC-Raters and ECC-Rater Companies. These additions are necessary to ensure that complex (or simple) ownership structures, debt agreements, or employee relationships are not used as undue influence over an ECC-Rater. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict ECC-Raters from performing field verification and diagnostic testing services for close family or relatives.

**Necessity:** This addition is necessary to prevent close family relationships of any kind to be used to influence an ECC-Rater providing filed verification and diagnostic testing services. ECC raters are more likely to provide a biased verification result if they have a close relationship with an individual, limiting commonly bias producing relationships captures a potentially large source of bias. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that ECC-Providers, ECC-Raters or ECC-Rater Companies remain as third-party, independent entities on a project site and do not contribute to the actual construction activities.

**Necessity:** This addition is necessary to help the ECC-Rater maintain their status as an independent agent on the project site. Independent agents would be more likely to produce unbiased, accurate field verification results. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to address issues regarding the lack of understanding on the part of the consumer and builder regarding the services provided by the ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to provide a report to the building owner that includes actionable information regarding the field verifications and diagnostic tests performed by the ECC-Rater. A well-understood ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to mandate the minimum identification information that must appear of the consumer report required by Section 10-103.3(b)1Avi.

**Necessity:** This addition is necessary to create a standard consumer report that clearly identifies the ECC-Rater and ECC-Rater Company as well as providing a simple means of advertisement. A well-understood ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to mandate the minimum information regarding the ECC-Provider used by the ECC-Rater to document the field verification and diagnostic testing results for the project on the report required by Section 10-103.3(b)1Avi.

**Necessity:** This addition is necessary to provide the consumer with a link to the correct ECC-Provider for further documentation (as needed) or to submit a complaint. A well-understood ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to help prevent over-charging or other consumer fraud by documenting the performance, results, and cost (charged to the subcontractor) regarding the field verifications and diagnostic tests performed at the project site.

**Necessity:** This addition is necessary to provide the consumer with sufficient information to verify the itemized bill from the subcontractor or builder. A well-understood ECC Program is necessary to encourage widespread program adoption and

accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to register the contact information of the building or homeowner where field verification and diagnostic testing are being performed by an ECC-Rater for possible later contact by the ECC-Provider as part of its ongoing quality assurance activities. Disciplinary consequences are also included to ensure compliance. Some projects may not have a homeowner in the residence, therefore additional consenting owners are also identified.

**Necessity:** This addition is necessary to assist the ECC-Provider in its performance of the quality assurance requirements as well as an opportunity to educate the general public on the ECC program. The requirement is burnished by creating a disciplinary measure if the completed form is not registered with an ECC-Provider. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to help prevent ECC-Raters from losing field verification and diagnostic testing services jobs to a second (less scrupulous) ECC-Rater when they must fail a project.

**Necessity:** This addition is necessary to help prevent ECC-Raters from undermining the integrity of the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to control the circumstances under which an ECC-Rater that has failed a project can allow another ECC-Rater to retest that project.

**Necessity:** This addition is necessary to allow for a new ECC-Rater to retest a failed project without undermining the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)1Aviiia(i)

**Specific Purpose:** The purpose of this addition is to allow the ECC-Rater to release a project that has failed to a new ECC-Rater.

**Necessity:** This addition is necessary to allow for the condition that an ECC-Rater may wish to move on to other jobs and not retest the failed project. A functioning ECC Program must be able to continue ensuring compliance with the building energy efficiency standards of a project in the case the original ECC-Rater cannot do so, so that the program may continue to reduce wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(b)1Aviiia(ii)

**Specific Purpose:** The purpose of this addition is to account for an ECC-Rater that has been injured and is unable to retest a failed project.

**Necessity:** This addition is necessary to allow the project to proceed in the event that the original ECC-Rater is unable to proceed. A functioning ECC Program must be able to continue ensuring compliance with the building energy efficiency standards of a project in the case the original ECC-Rater cannot do so, so that the program may continue to reduce wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(b)1Aviiia(iii)

**Specific Purpose:** The purpose of this addition is to account for an ECC-Rater that is unable to retest a failed project due to suspension or decertification.

**Necessity:** This addition is necessary to allow the project to proceed in the event that the original ECC-Rater is not eligible to perform the retest required. A functioning ECC Program must be able to continue ensuring compliance with the building energy efficiency standards of a project in the case the original ECC-Rater cannot do so, so that the program may continue to reduce wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(b)1Aviiia(iv)

**Specific Purpose:** The purpose of this addition is to prevent the ECC-Rater from using Section 10-103.3(b)1Aviii to hold a project hostage by refusing to perform the retest or relapsing the project.

**Necessity:** This addition is necessary to maintain a balance of power between the builder, subcontractor or homeowner and the ECC-Rater. A functioning ECC Program must be able to continue ensuring compliance with the building energy efficiency standards of a project in the case the original ECC-Rater cannot do so, so that the program may continue to reduce wasteful energy consumption as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to use the ECC-Provider data registry to support the requirements of Section 10-103.3(b)1Aviii. The compliance documentation is intended to help prevent verification tampering.

**Necessity:** This addition is necessary to ensure that all ECC-Providers are required to support the requirements of Section 10-103.3(b)1Aviii consistently. The data addition is necessary to ensure the correct project is identified and is not tampered with. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to help prevent an ECC-Rater from undermining the requirements of Section 10-103.3(b)1Aviii by entering the project into a different ECC-Provider data registry or an active failed field verification.

**Necessity:** This addition is necessary to help protect consumer from poor installation and false documentation. The addition ensures the integrity of compliance documents are maintained, no failed verification is replaced, and the provider registry remains accurate. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)1Aviiic(i)

**Specific Purpose:** The purpose of this addition is to require ECC-Providers to be vigilant regarding its data registry being used to undermine the requirements of Section 10-103.3(b)1Aviii.

**Necessity:** This addition is necessary to encourage ECC-Provider to be responsible stakeholder in promoting the efficacy of the requirements in Section 10-103.3(b)1Aviii. The addition creates an affirmative duty on the provider to ensure suspected violations are promptly investigated. The affirmative duty creates increased incentive for the provider to be a responsible quality assurance enforcer. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)1Aviiic(ii)

**Specific Purpose:** The purpose of this addition is to give the CEC the clear authority and specific actions needed to enforce the requirements of Section 10-103.3(b)1Aviii.

**Necessity:** This addition is necessary to enable the CEC to investigate and exact disciplinary measures as warranted regarding the enforcement of Section 10-103.3(b)1Aviii. A reputable ECC Program is necessary to encourage widespread

program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow for the legitimate off-purpose use of registered compliance documentation while maintaining the integrity of the ECC program.

**Necessity:** This addition is necessary to prevent entities from submitting falsified registered compliance documents to programs outside of the ECC program and thus diminishing the reputation of the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to prevent or at least address data being entered into the ECC-Provider data registry by ECC-Raters that have an existing conflict of interest.

**Necessity:** This addition is necessary to address the circumstance where ECC-Raters have a conflict of interest but perform the field verification and diagnostic testing and enter those results into the ECC-Provider data registry. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish that the ECC-Provider has the responsibility of first defense against conflicted data.

**Necessity:** This addition is necessary to require the ECC-Provider to defend its data registry as the Provider is the entity in control of the data registry. An accurate data registry is essential to a functioning ECC-program and buttresses trust in completed field verifications. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide a means of compliance for the ECC-Provider for Section 10-103.3(b)1Bi. It serves as an example for ECC-Providers on how to comply with Section 10-103.3(b)1Bi but is not the exclusive means.

It also makes clear that a Provider may accept data that was conflicted at the time but has received approval from the Executive Director.

**Necessity:** This addition is necessary to not overburden the ECC-Provider in its efforts to comply by providing a reasonable compliance path. This addition is necessary to provide an example of compliance while making clear a Provider may accept conflicted data if it was approved by the Executive Director. A well understood ECC Program among ECC Providers is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide an alternative means of compliance for the ECC-Provider for Section 10-103.3(b)1Bi, if the ECC-Provider can devise one that the CEC approves.

**Necessity:** This addition is necessary to avoid overburdening the ECC-Provider in its efforts to comply with Section 10-103.3(b)1Bi by allowing for an alternative compliance path if one can be developed by the ECC-Provider and approved by the CEC. A well understood ECC Program among ECC Providers is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require that the ECC-Provider routinely takes reasonable steps to confirm that its data registry does not contain conflicted data (i.e., the second line of defense).

**Necessity:** This addition is necessary so that ECC-Providers as the entity in control of the data registry take all reasonable steps to defend the data registry. An accurate data registry is essential to a functioning ECC-program and buttresses trust in completed field verifications. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to offer an example to ECC-Providers on how to deter ECC-Raters from entering conflicted data by ensuring that ECC-Providers explain and educate ECC-Raters regarding the new conflicted data requirements.

**Necessity:** This addition is necessary so that ECC-Raters cannot claim that they were not aware of the new conflicted data requirements and can take the appropriate actions to comply. A well understood ECC Program among ECC Providers is necessary to

encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish a means for the ECC-Provider to actively search out its data registry for non-compliant entries.

**Necessity:** This addition is necessary to motivate the ECC-Providers to take appropriate actions in guarding its data registry from conflicted data. A well understood ECC Program among ECC Providers is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require ECC-Providers to take the next step in the discovery of conflicted data in its data registry by requiring the ECC-Provider to launch an investigation. The purpose of this addition is to mandate ECC-Providers take affirmative steps to investigate suspected conflicted data, and if discovered to act upon such a discovery. Discovering conflicted data would have limited use without further actions.

**Necessity:** This addition is necessary to aid the ECC-Provider in constructing a defensible case when declaring that an ECC-Rater has violated the conflicted data regulations. Identifying conflicted data could become the basis for a progressive discipline action, therefore creating a clear record is necessary to discipline an ECC-Rater. A well understood ECC Program among ECC Providers is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to develop alternative processes that the CEC can determine are at least equivalent to the proposed processes.

**Necessity:** This addition is necessary to allow for innovation on the part of the ECC-Provider. A well understood ECC Program among ECC Providers is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to prevent the ECC-Provider from disseminating conflicted data.

**Necessity:** This addition is necessary because ECC-Providers routinely sell reports from its data registry, typically to other California state agencies. Conflicted data is more likely to be inaccurate, potentially skewing legitimate data, thereby polluting data sets. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this requirement is to make ECC-Raters and ECC-Rater Companies responsible for compliance with the conflicted data requirements. The Executive Director may give ECC-Raters or Companies approval to submit conflicted data, but ECC-Raters and Companies should only submit unconflicted data unless otherwise approved.

**Necessity:** This addition is necessary to ensure that the ECC-Rater and ECC-Rater Company are culpable for noncompliance with the conflicted data requirements. The Executive Director may give ECC-Raters or Companies approval to submit conflicted data, but ECC-Raters and Companies should only submit unconflicted data unless otherwise approved. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require that the ECC-Rater either positively declare that they do not have a conflict of interest or have permission from the CEC to enter conflicted data into the ECC-Provider data registry.

**Necessity:** This addition is necessary to remind the ECC-Rater that they are responsible for avoiding conflicts of interest when entering data into the EC-Provider data registry. A well understood ECC Program among ECC Raters and Rater Companies is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow for innovation in complying with the conflicted data requirements.

**Necessity:** This addition is necessary to develop alternative processes as situations arise, while ensuring the process is reviewed by the CEC. A well understood ECC Program among ECC Raters and Rater Companies is necessary to encourage widespread program adoption and accurately determine building energy efficiency

standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide for the unlikely instances where it is necessary to accept conflicted data into the ECC-Provider data registry.

**Necessity:** This addition is necessary to provide a reasonable remedy when an unforeseen circumstance occurs that may require accepting conflicted data into a data registry. A dynamic ECC program is necessary to adapt to changing conditions, allowing the ECC program to continue accurately determining building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the minimum requirements for the unlikely event that the CEC needs to grant an ECC-Rater permission to enter conflicted data into an ECC-Provider data registry.

**Necessity:** This addition is necessary to provide a reasonable and public means for the CEC to grant an ECC-Rater permission to use conflicted data. A dynamic ECC program is necessary to adapt to changing conditions, allowing the ECC program to continue accurately determining building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to give the Executive Director of the CEC a basis on which to grant an ECC-Rater permission to use conflicted data.

**Necessity:** This addition is necessary to restrict the evidence that can be considered by the Executive Director to be compelling and persuasive. A dynamic ECC program is necessary to adapt to changing conditions, allowing the ECC program to continue accurately determining building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require a high bar for determining is an argument is compelling and persuasive for the CEC to grant an ECC-Rater to use conflicted data.

**Necessity:** This addition is necessary to prevent trivial or general assertions from being considered as compelling or persuasive. A dynamic ECC program is necessary to adapt to changing conditions, allowing the ECC program to continue accurately determining

building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)1Bv, 10-103.3(b)1Bva, 10-103.3(b)1Bvb, 10-103.3(b)1Bvc, 10-103.3(b)1Bvd

**Specific Purpose:** The purpose of these additions is to provide the Executive Director of the CEC with several types of approvals to allow an ECC-Rater to use conflicted data and a reasonable time limit for the Director to respond. The additions make clear what type of applications the Executive Director may grant approval to.

**Necessity:** this addition is necessary to allow the Executive Director a reasonable time frame to issue a decision that is within the scope of the request. The additions also communicate to potential applicants under what grounds they should seek approval from the Executive Director when attempting to enter conflicted data. Finally, the additions allow the Executive Director to request additional information so they may gain a more complete understanding of the application's circumstances when deciding whether to grant, conditionally approve, or reject the application. A dynamic ECC program is necessary to adapt to changing conditions, allowing the ECC program to continue accurately determining building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require specific actions of the ECC-Provider upon discovery of suspected conflicted data that work toward building a case against the ECC-Rater and ECC-Rater Company so as to proceed toward disciplinary action.

**Necessity:** This addition is necessary to ensure that all ECC-Provider respond in a similar manner to conflicted data and ECC-Rater and ECC-Rater Company disciplinary actions. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify conflicted data within the ECC-Provider data registry without deleting it and notifying all affected parties of the issue.

**Necessity:** This addition is necessary to prevent conflicted data from undermining the integrity of the ECC program while identifying responsible or notifying affected parties. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)2

**Specific Purpose:** The purpose of this addition is to establish the requirements that ECC-Raters may not submit false, inaccurate, or incomplete data into the ECC-Provider data registry.

**Necessity:** This addition is necessary to help ensure that ECC-Provider, ECC-Rater and ECC-Rater Companies are responsible for the accuracy of the data entered into the ECC-Provider data registry. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the responsibility of ECC-Providers to be vigilant regarding the data entered into its data registry by all authorized users.

**Necessity:** This addition is necessary to ensure that the ECC-Provider understands and takes reasonable steps to ensure only accept, store, and disseminate accurate information. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)2B

**Specific Purpose:** The purpose of this addition is to remove the monetary incentive for ECC-Providers to accept data into its data registry that is out of compliance with these requirements.

**Necessity:** This addition is necessary to dissuade ECC-Providers from accepting money or other considerations that could influence ECC-Providers to mishandle data registries or appear to remove impartiality from data registries. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)2C

**Specific Purpose:** The purpose of this addition is to address the issue of ECC-Raters allowing their passwords to be used by laypersons to enter in data and validate that data into an ECC-Provider data registry.

**Necessity:** This addition is necessary because untrained and uncertified laypersons do not have the knowledge needed to verify that the data is accurate prior to registering the compliance documents. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency

standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)2Ci

**Specific Purpose:** The purpose of this addition is to allow but limit the use of uncertified trainees working under an ECC-Rater.

**Necessity:** This addition is necessary because several ECC-Raters have been allowing their trainees to perform field verifications and diagnostic tests without proper training or supervision. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(b)2Cii

**Specific Purpose:** The purpose of this addition is to make plain that the only person qualified to sign the field verification and diagnostic test compliance document and verify that the data entered is accurate is the ECC-Rater who performed these tests on the project site.

**Necessity:** The addition is necessary because the use of an uncertified layperson signing for the ECC-Rater has been witnessed. Assigning the verification to a single rater also increases accountability by signaling who conducted the verification. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to describe the review process and requirements for an ECC-Provider application.

**Necessity:** This addition is necessary to provide a basis for various types of ECC-Provider applications as well as the review and potential approval processes. A well-understood ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)1

**Specific Purpose:** The purpose of this addition is to list the types of ECC-Provider applications that the CEC will review and consider for approval.

**Necessity:** This addition is necessary to outline not only the types of ECC-Provider applications but also the CEC's review and potential approval process. Providers are given the benefit of what to expect if they seek certification and recertification. A well-understood ECC Program is necessary to encourage widespread program adoption and

accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)2

**Specific Purpose:** The purpose of this addition is to allow ECC-Providers to submit confidential information as part of its application.

**Necessity:** This addition is necessary to allow the CEC to consider confidential information in an ECC-Provider application in a public application process. Allowing confidential data to be submitted allows the applicant and CEC to fully consider the application. The public may receive a non-confidential summary of the confidential documents submitted, encouraging transparent governance while preserving applicant transparency with the CEC. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3

**Specific Purpose:** The purpose of this addition is to describe the application requirements for a new ECC-Provider (full application).

**Necessity:** This addition is necessary to provide the ECC-Provider applicant with the minimum requirements for a full application to be considered by the CEC. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3A

**Specific Purpose:** The purpose of this addition is to describe the required evidence needed to demonstrate that the ECC-Provider applicant can satisfy the application requirements.

**Necessity:** This addition is necessary to set the minimum requirement to demonstrate that an ECC-Provider applicant can satisfy all the regulatory requirements in Section 10-103.3(c)1. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3Ai

**Specific Purpose:** The purpose of this addition is to allow a new ECC-Provider to demonstrate that its untested proposed processes and systems are capable of being approved by the CEC.

**Necessity:** This addition is necessary because a new ECC-Provider applicant has not had the opportunity to prove its processes and system are capable of sufficient

operation in the real world. The alternative pathway allows them to show they may be a viable ECC-Provider. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3Aii

**Specific Purpose:** The purpose of this addition is to allow the CEC to consider both nonspecific complaints against the ECC-Provider applicant and actual evidence provided by a third party in an application review.

**Necessity:** This addition is necessary because the CEC uses a public process to review and potentially approve any ECC-Provider application which requires the Commission to consider all comments. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3B

**Specific Purpose:** The purpose of this addition is to include the actual legal company name of the ECC-Provider applicant in the application.

**Necessity:** This addition is necessary to limit the eventual powers granted by the CEC to an approved ECC-Provider to only that approved provider and not a parent or subsidiary. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3C

**Specific Purpose:** The purpose of this addition is to identify all persons with an influence over the ECC-Provider applicant.

**Necessity:** This addition is necessary to publicly reveal all individuals who might hold sway over the actions of an ECC-Provider applicant. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3D

**Specific Purpose:** The purpose of this addition is to identify any other entities that may have an influence other the ECC-Provider applicant.

**Necessity:** This addition is necessary to publicly reveal all entities that might hold sway over the actions of an ECC-Provider applicant. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy

efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3E

**Specific Purpose:** The purpose of this addition is to identify which Energy Code cycle(s) that an ECC-Provider applicant is applying to operate in.

**Necessity:** This addition is necessary because all ECC-Providers are limited to a specific code cycle of the Energy Code. They must reapply during each Energy code cycle to be a certified ECC-Provider. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3F

**Specific Purpose:** The purpose of this addition is to identify a point of contact for the ECC-Provider applicant.

**Necessity:** This addition is necessary because ECC-Providers are typically operated by a group of executives and not a single individual. Assigning specific points of contact increases efficiency and accountability if an issue arises, the person may be contacted directly instead of going through several intermediaries. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)3G

**Specific Purpose:** The purpose of this addition is to allow the CEC to accept any other information necessary in the ECC-Provider application.

**Necessity:** This addition is necessary to allow the ECC-Provider applicant the flexibility to submit relevant information for CEC consideration within its application. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)4

**Specific Purpose:** The purpose of this addition is to formally recognize that an ECC-Provider approved to operate under one code cycle of the Energy Code is only required to update its applicant pursuant to changes within the new code cycle,

**Necessity:** This addition is necessary because the CEC has functionally had to consider each ECC-Provider as a new provider which is time-consuming and unnecessary. Allowing the CEC to focus on changes and amendments saves the CEC resources while saving the applicant time. A robust and up to date ECC Program is

necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)4A

**Specific Purpose:** The purpose of this addition is to identify the original application as well as application amendments and the new updates to the application.

**Necessity:** This addition is necessary to conserve employee resources for the ECC-Provider applicant and the CEC. Using previously approved applications and amendments allows the Commission to save resources when re-analyzing previously approved materials. Identifying previously scrutinized materials could reduce duplicative review. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)4B

**Specific Purpose:** The purpose of this addition is to identify what past code cycles the CEC has approved for the ECC-Provider applicant.

**Necessity:** This addition is necessary to reduce unneeded workload for the ECC-Provider applicant and the CEC. Identifying previously scrutinized materials could reduce duplicative review. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)4C

**Specific Purpose:** The purpose of this addition is to accept all new evidence submitted by the ECC-Provider applicant for the new code cycle of the Energy Code.

**Necessity:** This addition is necessary to reduce unneeded workload for the ECC-Provider applicant and the CEC. Identifying previously scrutinized materials could reduce duplicative review. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)4D

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider applicant the option to submit a full application regardless of its prior application approvals.

**Necessity:** This addition is necessary in the event that an ECC-Provider applicant foresees that the updated application will be so significant that there is no labor or time-saving advantage to using the Triennial Reapproval Application process. A robust and up to date ECC Program is necessary to accurately determine building energy efficiency

standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5

**Specific Purpose:** The purpose of this addition is to allow an ECC-Provider that has been decertified by the CEC to make a one-time application for remediation.

**Necessity:** This addition is necessary to give the decertified ECC-Provider a reasonable opportunity to regain its CEC approval status. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5A

**Specific Purpose:** The purpose of this addition is to limit the ECC-Provider application for remediation to one.

**Necessity:** This addition is necessary to limit the effort and time spent by the CEC on reviewing an application from an ECC-Provider that has already gone through the full decertification process. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5B

**Specific Purpose:** The purpose of this addition is to limit the ECC-Provider remediation application to only the salient points.

**Necessity:** This addition is necessary to keep the ECC-Provider focused on the issues that lead to its decertification. Extraneous materials would increase review time for CEC staff while adding little information on whether to grant remediation. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5Bi

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to enter into the record all past approved applications.

**Necessity:** This addition is necessary to limit the ECC-Provider to only those applications that were approved by the CEC as a historic record. A previously

decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5Bii

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to enter into the record all correspondence regarding the decertification process between the applicant and the CEC.

**Necessity:** This addition is necessary to limit the ECC-Provider to only those correspondence that are relevant to its decertification. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5Biii

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to explain how it will remedy all violations as identified by the CEC.

**Necessity:** This addition is necessary to limit the ECC-Provider to addressing only those issues that are relevant to its decertification. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5Biv

**Specific Purpose:** The purpose of this addition is to provide a clear and concise record of the new ECC-Provider application as it incorporates all remedies identified as necessary by the CEC.

**Necessity:** This addition is necessary to maintain a clear ECC-Provider application on file with the CEC. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5C

**Specific Purpose:** The purpose of this addition is to establish a clear and concise approval process for the CEC by making specific findings.

**Necessity:** This addition is necessary to allow the CEC to make consistent approvals of ECC-Provider remediation applications. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that the CEC believes the amendments made to the ECC-Provider's application are credible and will be implemented.

**Necessity:** This addition is necessary to allow the CEC to question the authenticity of the ECC-Provider. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5Cii

**Specific Purpose:** The purpose of this addition is to allow the CEC to endorse the remediation plan presented by the ECC-Provider.

**Necessity:** This addition is necessary to allow the CEC to focus any investigation necessary to make this finding. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5Ciii

**Specific Purpose:** The purpose of this addition is to allow the CEC to endorse the ECC-Provider ability to implement the proposed remediation plan.

**Necessity:** This addition is necessary to allow the CEC to evaluate the abilities of the ECC-Provider. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5D

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to submit a full application after the CEC approves its application for remediation.

**Necessity:** This addition is necessary to allow the CEC to reconsider the remediation application in the full application and address any additional issues as needed. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)5E

**Specific Purpose:** The purpose of this addition is to allow the possibility that the ECC-Provider with a rejected (one-time) application for remediation might deserve another opportunity for remediation.

**Necessity:** This addition is necessary to allow the CEC to consider all options before banning an ECC-Provider applicant from ever submitting another application. A previously decertified ECC provider must show they will not tarnish the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)6

**Specific Purpose:** The purpose of this addition is to formally allow an ECC-Provider the option to halt the application review process and update its application with further information.

**Necessity:** This addition is necessary to address such midstream application changes that were so significant that they described a substantially new application. An up to date ECC Provider application is necessary to ensure the Provider meets all regulations. Doing so ensures building energy efficiency standard compliance can be accurately determined and wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)6A

**Specific Purpose:** The purpose of this addition is to allow a full public review of any updated application.

**Necessity:** This addition is necessary to protect the CEC's dedication to public review of applications. Public participation may spotlight issues the Commission may not be aware of while increasing transparency. A robust publicly vetted application will help ensure that building energy efficiency standards compliance is accurately determined and wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)6B

**Specific Purpose:** The purpose of this addition is to allow the CEC the authority to direct an ECC-Provider applicant to update its application to address specific shortcomings.

**Necessity:** This addition is necessary to allow the CEC to respond to public comments either through an update to the application or a condition of approval. A robust and up to date ECC Provider application is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)6C

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to withdraw its application and resubmit it at a later time.

**Necessity:** This addition is necessary to allow the ECC-Provider applicant the option to consider extensive changes to its application that might be too significant for an update. A robust and up to date ECC Provider application is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)7

**Specific Purpose:** The purpose of this addition is to allow the approved ECC-Provider to make changes to its original application to reflect necessary operational changes. This requirement captures changes made outside regular code cycle updates.

**Necessity:** This addition is necessary to allow the ECC-Provider to make changes to its operations as challenges arise. A robust and up to date ECC Provider application is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)7A

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to differentiate between substantive and non-substantive operational changes that necessitate an amendment to its application. The determination has an effect on how an amendment is processed and is therefore important to decide when the amendment is submitted, the two processes are reviewed and approved at different speeds.

**Necessity:** This addition is necessary to allow minor changes to be addressed by an executive approval process and significant changes to be approved by a more formal process. A robust and up to date ECC Provider application is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)7B

**Specific Purpose:** The purpose of this addition is to identify what the CEC would consider to be a substantive change to the ECC-Provider application and the review and approval process that must be followed.

**Necessity:** This addition is necessary to ensure that substantive changes go through the same public review and approval process as a full application. Changes requiring full Commission must go before a regularly scheduled business meeting. A robust and up to date ECC Provider application is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)7C

**Specific Purpose:** The purpose of this addition is to identify minor changes to the ECC-Provider application and to allow the CEC to use an executive approval process to review and approve the application.

**Necessity:** This addition is necessary to avoid long and unneeded delays in approving minor changes to the ECC-Provider application. Changes that can be approved by the Executive Director do not need to go before a business meeting and can be approved more quickly. A robust and up to date ECC Provider application is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)8

**Specific Purpose:** The purpose of this addition is to formally recognize that the CEC may, at its discretion, approve any ECC-Provider application with conditions of approval. Conditions of approval allow the CEC to maintain higher operating standards as it deems necessary.

**Necessity:** This addition is necessary to codify a long-standing practice of the CEC. To meet the directive of PRC 25402, which includes reducing wasteful energy consumption, the CEC must be able to apply additional conditions of approval to ECC Provider applications.

**Section:** 10-103.3(c)9

**Specific Purpose:** The purpose of this addition is to prevent a decertified ECC-Provider from reapplying to the CEC.

**Necessity:** This addition is necessary to prevent a disgruntled decertified ECC-Provider from wasting the CEC's time in an unnecessary application review. A previously decertified ECC-Provider may increase the risk of tarnishing the ECC program. Declining to reconsider a previously decertified ECC-Provider may avoid damaging the ECC program reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency

standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)9A

**Specific Purpose:** The purpose of this addition is to allow the Executive Director of the CEC to reject an application from a decertified ECC-Provider if they have not completed the required remediation process.

**Necessity:** This addition is necessary to allow the Executive Director to reject the ECC-Provider application as opposed to the CEC so as not to waste time and resources. A previously decertified ECC-Provider may increase the risk of tarnishing the ECC program. Declining to reconsider a previously decertified ECC-Provider may avoid damaging the ECC program reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)9B

**Specific Purpose:** The purpose of this addition is to allow the decertified ECC-Provider applicant to appeal the Executive Director's decision to the CEC if it can show it is not related to a decertified ECC-Provider.

**Necessity:** This addition is necessary to allow for a formal and final decision from the CEC. A previously decertified ECC-Provider may increase the risk of tarnishing the ECC program. Declining to reconsider a previously decertified ECC-Provider may avoid damaging the ECC program reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)9C

**Specific Purpose:** The purpose of this addition is to establish the minimum evidentiary requirements for the ECC-Provider applicant to proceed.

**Necessity:** This addition is necessary to focus the evidence to be considered by either the Executive Director or the CEC on the pertinent issues. A previously decertified ECC-Provider may increase the risk of tarnishing the ECC program. The ECC-Provider's application must meet minimum standards to maintain the ECC program's reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(c)9D

**Specific Purpose:** The purpose of this addition is to allow the CEC to permanently bar the decertified ECC-Provider who has already exhausted remedies from submitting any further applications.

**Necessity:** This is necessary to prevent a decertified ECC-Provider from reapplication or re-entry into the marketplace to further degrade the reputation of the ECC program. A previously decertified ECC-Provider may increase the risk of tarnishing the ECC program. Declining to reconsider a previously decertified ECC-Provider may avoid damaging the ECC program's reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify ECC-Provider responsibilities in the ECC program.

**Necessity:** This addition is necessary to delineate responsibilities between the ECC-Provider, ECC-Rater, and the CEC for purposes of oversight. Clear responsibilities ensure accountability when an issue arises. A robust and clear ECC Program is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the requirements for the ECC-Provider when providing training for the ECC-Rater.

**Necessity:** This addition is necessary to clearly lay out what is required of ECC-Providers when designing, accrediting, and certifying ECC-Raters. The Commission must approve all training materials prior to use to ensure requirements are met and reviewed. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the minimum required training and testing curriculum for ECC-Raters (as provided by ECC-Providers).

**Necessity:** This addition is necessary to ensure that every ECC-Rater receives at least the minimum required training. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include the field verification and diagnostic testing procedures as part of the training requirements for ECC-Raters.

**Necessity:** This addition is necessary to ensure that every ECC-Rater receives at least the minimum required training. Normalizing the training for all ECC-Raters across all ECC-Providers is needed to help ensure that each ECC-Rater (and ECC-Rater Company) can produce consistent field verifications and diagnostic testing. Inconsistent verifications across ECC-Raters have been a long-term issue within the ECC-Program. Field verification and diagnostic testing are the core services performed by the ECC-Rater, including them is crucial to the ECC program objectives. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aia, 10-103.3(d)1Aib, 10-103.3(d)1Aic, 10-103.3(d)1Aid, 10-103.3(d)1Aie, and 10-103.3(d)1Aif

**Specific Purpose:** The purpose of this addition is to include each Field Verification and Diagnostic Testing Protocol in the Reference Appendices RA1, RA2, RA3, RA4, NA1, and NA2.

**Necessity:** This addition is necessary to ensure that every ECC-Rater receives at least the minimum required training. This addition addresses long standing issues regarding the consistency across ECC-Raters in the performance of the field verification and diagnostic testing, which is the core services performed by the ECC-Rater. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include non-field verification and diagnostic testing training materials as they pertain to the activities of the ECC-Rater.

**Necessity:** This addition is necessary to address shortcomings in ECC-Rater testing that may be resolved by further training. It is necessary to train ECC-Raters in more general building energy efficiency science so that they can more easily remedy issues in the field that may make testing difficult. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to educate the ECC-Rater regarding the roles and responsibilities of all entities regulated in Section 10-103.3

**Necessity:** This addition is necessary because many of the roles and responsibilities covered in Section 10-103.3 will be new to the ECC-Rater. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include standard nomenclature used in the construction industry that is pertinent to the ECC-Rater.

**Necessity:** This addition is necessary to ensure that the ECC-Rater understands the nomenclature as it pertains to their activities. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include basic building science in the training for ECC-Raters.

**Necessity:** This addition is necessary to address basic errors that some ECC-Raters make during the field verification and diagnostic testing procedures. These errors are indicative of building practices that may not have been taken into consideration when the field verification and diagnostic testing procedures were developed. It is therefore necessary that ECC-Rater be educated in basic building science to aid in a consistent and reliable testing result. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1AiiC(i)

**Specific Purpose:** The purpose of this addition is to include principles of heat transfer training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic errors that the ECC-Raters make during the field verification and diagnostic testing. Heat transfer is a major indicator of a buildings ability to be cooled or heated. ECC-Raters need to be cognoscente of how heat transfer can impact field verification and diagnostic testing. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1AiiC(ii)

**Specific Purpose:** The purpose of this addition is to include energy conservation features training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. The energy efficiency features are constantly being improved over time and may be installed slightly differently across contractors. It is necessary for the ECC-Rater to be educated on these issues to properly perform the field verification and diagnostic testing services. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(c)(iii)

**Specific Purpose:** The purpose of this addition is to include framing, fenestration, insulation, and other built or installed features training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. These building features can greatly affect the outcome of a field verification and diagnostic test. Therefore, the ECC-Rater must be educated on these features and how to compensate for them. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(c)(iv)

**Specific Purpose:** The purpose of this addition is to include energy consuming appliances training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. Energy consuming appliances can affect the outcome of a field verification and diagnostic test. Therefore, an ECC-Rater must be educated on how these effects can be compensated while testing. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(c)(v)

**Specific Purpose:** The purpose of this addition is to include types of space conditioning and ventilating systems training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. Heating, ventilating and air conditioning (HVAC) systems are the most energy intensive equipment in most homes. The ECC-Rater must be made aware of the various types of HVAC equipment and how they are to be tested. A robust ECC Program training curriculum is necessary to

accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(vi)

**Specific Purpose:** The purpose of this addition is to include types of water heating training subject as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. Water heating for domestic hot water (DHW) is a significant energy use in most homes. There are several field verification and diagnostic tests that must be performed when installing new DHW equipment. ECC-Raters must be knowledgeable regarding the various types of DHW equipment as well as their installations. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(vii)

**Specific Purpose:** The purpose of this addition is to include categories of lighting systems and lighting controls training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. Lighting consumes the second most power in electricity (after HVAC systems). It is critical for ECC-Raters to understand how lighting systems are to work and how they can affect the outcome of a field verification and diagnostic test. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(viii)

**Specific Purpose:** The purpose of this addition is to include energy generating and storage systems training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. The, relatively new, solar and battery system are constantly changing based on the manufacturer's directions. Yet, they still need to pass field verification and diagnostic testing by the ECC-Raters. Therefore, it is important for the ECC-Raters to be educated on the varieties of energy producing and storage systems available on the market today. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(c)(ix)

**Specific Purpose:** The purpose of this addition is to include energy efficiency effects of building characteristics training as it pertains to the ECC-Rater activities.

**Necessity:** This addition is necessary to address basic error that the ECC-Rater make during the field verification and diagnostic testing. Building characteristics can have a significant impact on field verification and diagnostic testing, typically during the outside air infiltration tests (or air-tightness tests). ECC-Raters need to understand the impact of building characteristics on testing and how to compensate for it. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to help address worker safety issues for the ECC-Rater while on the project site.

**Necessity:** This addition is necessary to help protect the ECC-Rater while performing field verification and diagnostic testing. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(d)(i)

**Specific Purpose:** The purpose of this addition is to add personal protective equipment and appropriate dress training to help ensure the safety of the ECC-Rater while on the project site.

**Necessity:** This addition is necessary to ensure worker safety while carrying out verification and testing. Inappropriate attire or protective equipment may result in injury. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(d)(ii)

**Specific Purpose:** The purpose of this addition is to add communication with site management personnel training to help ensure the safety of the ECC-Rater while on the project site.

**Necessity:** Project site safety management is critical when performing field verification and diagnostic testing. Avoiding injury to the ECC-Rater, as well as others, is a critical piece of the performance of these tests. The risk of bodily injury as well as equipment damage is sufficient reason to provide this training. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiid(iii)

**Specific Purpose:** The purpose of this addition is to add awareness of site hazards, occupants in the dwelling unit, and escape route training to help ensure the safety of the ECC-Rater while on the project site.

**Necessity:** This addition is necessary to help ensure the safe working environment for the ECC-Rater. These working environments are typically people's homes where safe storage of hazardous materials is not strictly regulated. Training the ECC-Rater to evaluate the safety of the home for their own protection is essential. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiid(iv)

**Specific Purpose:** The purpose of this addition is to add site security training to help ensure the safety of the ECC-Rater while on the project site.

**Necessity:** This addition is necessary to help ensure that the working environment is well secured for the ECC-Rater. The working environments are typically people's homes and may not include reasonable safety measures, which could be an unreasonable risk for the ECC-Rater. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiid(v)

**Specific Purpose:** The purpose of this addition is to make available additional worker safety practices, not limited to the ECC program.

**Necessity:** This addition is necessary educate the ECC-Rater on a variety of safe worker practices that they should follow when entering the work site. The ECC-Rater working environment may include active construction sites in multistory building. These additional practices will help the ECC-Rater complete their tasks while reducing their risk of injury. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to verify that ECC-Rater understands how to maintain the specialized equipment used to perform field verifications and diagnostic testing.

**Necessity:** This addition is necessary to address fundamental failures of ECC-Raters to maintain and calibrate their instrumentations. A robust ECC Program training curriculum

is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(i)

**Specific Purpose:** The purpose of this addition is to verify that ECC-Raters properly maintain diagnostic devices used to perform field verifications and diagnostic testing.

**Necessity:** This addition is necessary to address fundamental failures of ECC-Raters to maintain and calibrate their instrumentations. There have been several complaints and investigations indicating that a minority of ECC-Raters do not routinely calibrate their devices. This can cause false positive readings as well as contribute to a negative impression of the ECC Program as a whole. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(ii)

**Specific Purpose:** The purpose of this addition is to verify that ECC-Raters maintain the accuracy and tolerance limits of the specialized equipment used to perform field verifications and diagnostic testing.

**Necessity:** This addition is necessary to address fundamental failures of ECC-Raters to maintain and calibrate their instrumentations. There have been instances of ECC-Raters operating the field verification and diagnostic testing equipment in the wrong range (or outside of the intended range entirely) which resulted in several erroneous failures. This impacts the integrity of the ECC-Rater as well as the program as a whole. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(iii)

**Specific Purpose:** The purpose of this addition is to verify that ECC-Raters properly calibrate the specialized equipment used to perform field verifications and diagnostic testing.

**Necessity:** This addition is necessary to address fundamental failures of ECC-Raters to maintain and calibrate their instrumentations. This equipment needs to be calibrated on an annual or semi-annual basis to be relied upon to produce accurate results. Proper calibration is essential to producing accurate field verification and diagnostic testing results. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii(f)

**Specific Purpose:** The purpose of this addition is to instruct ECC-Raters regarding the manufacturers' certifications consolidated at the CEC web as required by the Energy Code.

**Necessity:** This addition is necessary to ensure that the ECC-Rater understands when and how to access the CEC manufacturer equipment certifications. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiif(i)

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater knows the overall scope of equipment that may (or must) be certified to the CEC.

**Necessity:** This addition is necessary to educate the ECC-Rater regarding what equipment may be certificated by the CEC. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiif(ii)

**Specific Purpose:** The purpose of this addition is to educate the ECC-Rater regarding when equipment certification is required and what impact it has on the overall construction implementation.

**Necessity:** This addition is necessary to ensure that the ECC-Rater enforces the Energy Code requirement appropriately. Equipment certification (from the manufacturer or certified repair facility) is periodically necessary to ensure its continued safe operation. Equipment that has fallen out of certification can cause false reading as well as unnecessary delay of projects. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiif(iii)

**Specific Purpose:** The purpose of this addition is to inform the ECC-Rater on exactly how to access the CEC manufacturers' certified equipment lists and how to find specific equipment.

**Necessity:** This addition is necessary because the CEC updates the point of access for the manufacturers' certified equipment lists and how they are organized. Raters must know how to access these lists as they are subject to change. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to verify that the ECC-Rater understands how to use the ECC-Provider data registry system.

**Necessity:** This addition is necessary because the ECC-Providers must update its data registry system with each Energy Code cycle as well as in-between when necessary. The data registry system is a critical step in documenting the field verification and diagnostic testing. The ECC-Rater must understand completely how to use the data registry interface and how to resolve issues if they should arise. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiig(i)

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater with the necessary information regarding the changes to the Energy Code at each code cycle, including building energy efficiency standards regulations, associated testing protocols, and the corresponding forms for data entry.

**Necessity:** This addition is necessary because the Energy Code requirements for field verification and diagnostic testing change in both significant and subtle ways in virtually all code cycles for the Energy Code. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiig(ii)

**Specific Purpose:** The purpose of this addition is to properly train an ECC-Rater on how to properly document workflows and input data. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Necessity:** This addition is necessary to ensure that the ECC-Rater understands what compliance documentation they should and from whom. The data registry is a complex system the ECC-Rater must understand so as to take appropriate actions when necessary to resolve issues. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiig(iii)

**Specific Purpose:** The purpose of this addition is to educate the ECC-Rater regarding the automated form logic and validation process.

**Necessity:** This addition is necessary to help the ECC-Rater avoid data entry issues in the field and diagnose issues when they do arise. A robust ECC Program training

curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aiig(iv)

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater understands the group sampling process as well as the roles and responsibilities of other responsible persons.

**Necessity:** This addition is necessary to address consistent errors made by ECC-Raters as well as other responsible persons on the project site. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to create a foundation of professional behavior for ECC-Rater who deal with the public and represent the ECC program.

**Necessity:** This addition is necessary to address several incidences that have resulted in complaints as well as disciplinary actions. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii i

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater is familiar with the resources available through the CEC website that are useful to aid in the performance of the field verification and diagnostic testing on a project site.

**Necessity:** This addition is necessary to address a slight deficiency that some ECC-Raters have encountered regarding an unusual field verification and diagnostic test in a real-world application. Resources on the Commission's website may assist the ECC-Rater and result in a more accurate field verification test. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)1Aii j

**Specific Purpose:** The purpose of this addition is to educate all ECC-Raters regarding the new progressive discipline requirements in Section 10-103.3. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Necessity:** This addition is necessary to ensure that ECC-Raters understand their rights under the new progressive discipline regulations. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to educate the ECC-Rater regarding the new quality assurance requirements and how they are associated with the progressive discipline requirements.

**Necessity:** This addition is necessary to ensure that the ECC-Rater understands the responsibilities of the ECC-Provider as well as their own responsibilities to ensure that the Quality assurance procedures are complied with. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to educate the ECC-Rater regarding the changes in the conflict-of-interest requirements.

**Necessity:** This addition is necessary to address a fundamental misunderstanding of the ECC-Rater regarding conflict of interest and the impacts this can have on the reputation of the ECC program. The clear conflict-of-interest restrictions are made clear to ECC-Raters so that the reputation of the ECC program may be improved. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to educate the ECC-Rater regarding the ongoing prohibition on false, inaccurate, and incomplete data entry into the ECC-Provider data registry.

**Necessity:** This addition is necessary to ensure that any falsification on the part of the ECC-Rater can be used to implement the progressive discipline requirements, thereby increasing the accuracy and reputation of the ECC-Program. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of the addition is to describe the minimum requirements for classroom ECC-Rater training.

**Necessity:** This addition is necessary to ensure that all ECC-Providers have comparable classroom training, and that ECC-Raters are consistently trained regardless of what ECC-Provider trained them. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow for both in-person and remote training options, as well as allowing for automated training options.

**Necessity:** This addition is necessary to address the need for various options for classroom training in light of catastrophic events such as the COVID pandemic. As a result of the pandemic, remote training has improved dramatically and is a viable and convenient option to in-person classroom training. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure proper trainee interaction with the online classroom system.

**Necessity:** This addition is necessary to prevent inappropriate trainee activities during the classroom session. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow for optional pre-recorded training instruction but to ensure that it is not the only training for a particular module.

**Necessity:** This addition is necessary to allow for economy of scale when producing training materials, and only where appropriate, and with limitations. Pre-recorded trainings have both advantages and disadvantages and therefore must be used only with limitations. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the use of tests and exams as a training method, with limitations.

**Necessity:** This addition is necessary to allow a proven test-anxiety remedy as well as a common practical training method. A robust ECC Program training curriculum is

necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require a minimum level of instructional materials for each ECC-Raters being trained.

**Necessity:** This addition is necessary to ensure that all ECC-Raters have a similar level of training materials regardless of the ECC-Provider. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the scope of the training materials to be developed by the ECC-Provider, they must meet the requirements laid out in Section 10-103.3(d)1Ai and Section 10-103(d)1Aii.

**Necessity:** This addition is necessary to ensure that all ECC-Raters have a similar level of training materials regardless of the ECC-Provider. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** Slideshow materials must have an accompanying script or detailed outline that explains the purpose of each visual used. The purpose of this addition is to ensure that the CEC has a full understanding of the slide presentation materials.

**Necessity:** This addition is necessary to address shortcomings of previous ECC-Provider applications that included slide decks of indecipherable context. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** Each slide text and graphic must be legible; the purpose of this addition is to ensure that the slide deck used for training purposes is understandable.

**Necessity:** This addition is necessary to ensure that ECC-Providers use high quality training materials whenever possible to provide clear training instructions. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** Government logos may not appear on class materials without permission, the purpose of this addition is to ensure that training materials are not mistaken for governmental materials on the same subject.

**Necessity:** This addition is necessary to maintain a strict control over governmental logos such as the CEC logo. Allowing unsanctioned use of government logos may confuse the public on what the government's role in the project is.

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

**Specific Purpose:** The purpose of this addition is to require a minimum laboratory (or hands-on) training for ECC-Raters to make sure that they are accustomed to the procedures and measurement tools needed to perform field verification and diagnostic testing.

**Necessity:** This addition is necessary because the laboratory training used by ECC-Providers currently is inconsistent. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require a repeatable laboratory training environment that has been approved by the Commission for ECC-Raters.

**Necessity:** This addition is necessary to ensure that each ECC-Rater has a similar opportunity to experience field verification and diagnostic training. More consistent training will likely result in more consistent test results. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure Laboratory training is conducted in a controlled space with appropriate safety measures to guarantee the safety of ECC-Raters and instructors.

**Necessity:** This addition is necessary to prevent substandard training spaces from being utilized by ECC-Providers, avoiding risks to both ECC-Raters and their instructors. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require no more than ten students to one instructor to ensure a reasonable instructor-to-student ratio for a safe and effective laboratory experience.

**Necessity:** This addition is necessary to prevent the ECC-Provider from overwhelming an instructor in a laboratory setting with an unreasonable number of students. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require ECC-Providers to provide at least one test equipment per five students, allowing for an economy of laboratory setups without devaluing the training for each ECC-Rater.

**Necessity:** This addition is necessary to address the natural tendency of ECC-Providers to reduce laboratory expenses at the disservice of ECC-Raters. One test equipment is likely sufficient for ECC-Raters to train with while allowing ECC-Providers to avoid having to purchase a surplus of test equipment. A robust ECC Program training curriculum is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the requirements for a written test for ECC-Raters based on the training provided by the ECC-Provider.

**Necessity:** This addition is necessary to ensure that the written test for ECC-Raters is similar regardless of the ECC-Provider. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the required written test to be online (or in person) with the appropriate proctoring.

**Necessity:** This addition is necessary to allow for online testing for ease of providing the test statewide. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require between 10 and 100 questions per subject area at a level of difficulty commensurate with the training supplied by the ECC-Provider.

**Necessity:** This addition is necessary to ensure that the number of questions per subject captures the required knowledge while the level of difficulty is similar regardless of the ECC-Provider. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish a minimum passing score of 70% for the test.

**Necessity:** This addition is necessary to ensure that the required expertise for a passing score is similar regardless of the ECC-Provider. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that the CEC is fully informed and approves the ECC-Rater tests proposed by each ECC-Provider.

**Necessity:** This addition is necessary to ensure that the CEC can verify that the ECC-Rater tests are consistent regardless of the ECC-Provider. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that ECC-Raters take a laboratory (practical) test as a requirement of certification. These additions also ensure that the ECC-Provider retains a copy of the results for five years from the test date.

**Necessity:** This addition is necessary to ensure that the practical test for ECC-Raters is consistent regardless of the ECC-Provider. The practical training and testing have been a proven technique to better engrain the field verification and diagnostic testing procedures into ECC-Raters. Maintaining the testing records for five years is helpful when reviewing the training and certification of an ECC-Rater. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that the laboratory tests are performed in a Commission approved facility.

**Necessity:** This addition is necessary to encourage consistent application of learned material. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish a maximum proctor-student ratio (1:5) during practical testing.

**Necessity:** This addition is necessary to combat the economic pressure on ECC-Providers to reduce practical testing costs at the expense of ECC-Raters (by increasing the proctor-student ratio). A smaller proctor-to-student ratio is also likely to reduce potential cheating. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater has access to test equipment and works alone during the test. These requirements ensure the ECC-Rater will be able to complete an accurate field verification and diagnostic test

**Necessity:** This addition is necessary ensure that the ECC-Rater can complete the test and can do it alone. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require that all practical tests are reviewed and approved by the CEC during the ECC-Provider application review process prior to use.

**Necessity:** This addition is necessary to ensure that both the facility and test procedures are adequate under these regulations and give the Commission the required oversight to ensure a program will increase energy efficiency and reduce waste through adequate testing. A rigorous testing curriculum is necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to define acceptable features of proctoring software and give the Commission final approval of the proctoring software.

**Necessity:** This addition is necessary to allow the ECC-Providers to augment its online learning systems (if necessary) or provide alternative proctoring software. The

proctoring software will help ensure Raters are fairly tested and will be able to replicate field verification outside of the test format. These changes will increase testing accuracy, thereby increasing energy efficiency and reduce waste. Rigorous testing standards are necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require a time-limiting feature for proctoring software.

**Necessity:** This addition is necessary to limit both the training and testing portion of the ECC-Rater certification process. A reasonable amount of time simulates how much time will be available during field verification testing. Time-limited testing will prepare raters for field testing, thereby increasing the number of sites that can be tested for energy efficiency. Rigorous testing standards are necessary to ensure each ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the minimum monitoring system for the proctoring software.

**Necessity:** This addition is necessary to ensure that the ECC-Rater is taking the training or testing and is not accessing restricted materials. The proctoring software will help ensure Raters are fairly tested and will be able to replicate field verification outside of the test format. These changes will increase testing accuracy, thereby increasing energy efficiency and reducing waste. Rigorous testing standards are necessary to ensure each ECC-Rater is able to accurately determine building standards compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide for a challenge test to indoctrinate a certified ECC-Rater into a new ECC-Provider system. The challenge test must meet certain requirements to ensure it meets the covered subject material.

**Necessity:** This addition is necessary so as not to waste time and resources training an already certified ECC-Rater when it is not necessary. A thorough challenge test ensures an ECC-Rater will be able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict the challenge test to certified ECC-Raters.

**Necessity:** This addition is necessary to restrict access to the ECC-Rater certification to only those individuals that have been trained and certified by CEC-approved ECC-Providers. A thorough challenge test ensures an ECC-Rater will be able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402, while also ensuring the ECC-Rater is eligible to sit for the test.

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

**Specific Purpose:** The purpose of this addition is to restrict the challenge test to live proctored testing only.

**Necessity:** This addition is necessary to ensure that the ECC-Rater is the person taking the challenge test. A thorough challenge test ensures an ECC-Rater will be able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to limit the difficulty of the challenge test to only the training materials.

**Necessity:** This addition is necessary to ensure that the difficulty of the challenge test is consistent regardless of the ECC-Provider. A thorough challenge test ensures an ECC-Rater will be able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure the challenge test covers all of the training materials.

**Necessity:** This addition is necessary to ensure that the subject of the challenge test is consistent regardless of the ECC-Provider. A thorough challenge test ensures an ECC-Rater will be able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow abbreviated training and testing for ECC-Raters certified for the previous Energy Code that will focus on only the changes in the new Energy Code.

**Necessity:** This addition is necessary to reduce the training and testing time for experienced ECC-Raters. A rigorous testing curriculum is necessary to ensure each

ECC-Rater is able to accurately determine building standards compliance, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the requirements for ECC-Rater certification as well as the responsibilities of the ECC-Provider upon certification.

**Necessity:** This addition is necessary to ensure that the certification process is similar regardless of the ECC-Provider. Rigorous consistent training requirements among ECC-Raters are necessary to ensure they are able to accurately and consistently determine building standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish both the limits (a single code cycle) and requirements (required training and passing tests) to certify an ECC-Rater.

**Necessity:** This addition is necessary to make ECC-Rater training required for certification. Certification is limited to each code cycle, therefore regular training or testing is necessary to ensure ECC-Raters are able to accurately conduct field verifications and ensure energy efficiency or reduce energy waste. The certification ensures the training requirements are enforceable, which ensure ECC-Raters are able to accurately and consistently determine building standard compliance which in turn reduce wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide and require a written agreement of conduct and rights between the ECC-Provider and ECC-Rater.

**Necessity:** This addition is necessary to help establish the roles, responsibilities, and rights of the ECC-Rater. The certification ensures the training requirements are enforceable, which ensure ECC-Raters are able to accurately and consistently determine building standard compliance which in turn reduce wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to prevent ineligible ECC-Raters from being certified.

**Necessity:** This addition is necessary to protect the reputation of the ECC program. Certified ECC-Raters will help maintain the accuracy of field verification, thereby increasing energy efficiency and reducing waste. A reputable ECC Program is

necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to create a publicly accessible list of certified ECC-Raters.

**Necessity:** This addition is necessary to track ECC-Raters and their current certification status while giving the public access to ensure they are working with a certified ECC-Rater. Certified ECC-Raters will carry out field verification testing to ensure energy efficiency and reduce waste. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify, by first and last name, the certified ECC-Rater in the list of certified ECC-Raters.

**Necessity:** This addition is necessary to allow the public to independently verify the name of the certified ECC-Rater. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business (not personal) contact information of the certified ECC-Rater within the list of certified ECC-Raters.

**Necessity:** This addition is necessary to protect the personal information of the ECC-Rater while allowing the public to identify the Rater by their contact information. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business (not personal) contact information of the certified ECC-Rater.

**Necessity:** This addition is necessary to protect the personal information of the ECC-Rater while allowing the public to identify the Rater by their contact information. A reputable ECC Program is necessary to encourage widespread program adoption and

accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business (not personal) contact information of the certified ECC-Rater.

**Necessity:** This addition is necessary to protect the personal information of the ECC-Rater while allowing the public to identify the Rater by their contact information. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business (not personal) contact information of the certified ECC-Rater.

**Necessity:** This addition is necessary to protect the personal information of the ECC-Rater while allowing the public to identify the Rater by their contact information. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to make public the certification status of the ECC-Rater, allowing the public to independently verify that the ECC-Rater they hire is eligible to perform field verification and diagnostic testing.

**Necessity:** This addition is necessary not only for the public but also for the CEC's investigation into ECC-Rater misconduct. The main purpose of this requirement is to help consumers to find or verify an ECC-Rater. However, this is also helpful for investigations regarding an ECC-Rater or ECC-Rater Company. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)3

**Specific Purpose:** The purpose of this addition is to identify the requirements for the ECC-Provider when providing training for the ECC-Rater Company. The ECC-Provider training may not exceed 8 hours in duration and must have its materials approved by the Commission as part of the ECC-Provider's training curriculum.

**Necessity:** This addition is necessary to allow the ECC-Provider to understand the scope and expectations of the CEC pertaining to ECC-Rater Company training. These

requirements must be met for the Commission to approve the ECC-Provider's application materials. A rigorous training curriculum is necessary to ensure each ECC-Rater Company is able to adhere to its responsibilities which assist in reducing wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)3A

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater Company with a basic understanding of the responsibilities of the ECC-Rater.

**Necessity:** This addition is necessary to help ensure that the ECC-Rater Company does not inadvertently order the ECC-Rater to perform a task outside of their role. A rigorous training curriculum is necessary to ensure each ECC-Rater Company is able to adhere to its responsibilities which assist in reducing wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)3B

**Specific Purpose:** The purpose of this addition is to establish the minimum training for the ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that the training is consistent regardless of the ECC-Provider. The training provides the necessary knowledge set for ECC-Raters to participate in the ECC program and accurately conduct field verification and testing to increase energy efficiency and reduce waste. A rigorous training curriculum is necessary to ensure each ECC-Rater Company is able to adhere to its responsibilities which assist in reducing wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)3Bi

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater Company understands the roles and responsibilities of entities involved in the project.

**Necessity:** This addition is necessary to address several instances of overstepping by ECC-Rater Companies when working with builders and contractors. The addition ensures ECC-Raters do not go beyond the purview of the ECC program. A rigorous training curriculum is necessary to ensure each ECC-Rater Company is able to adhere to its responsibilities which assist in reducing wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)3Bii

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater Company understands the progressive discipline process for both the ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that the training for ECC-Rater Companies is consistent regardless of the ECC-Provider. Progressive discipline creates an incentive for ECC-Raters to conduct accurate energy efficiency testing. It is important for ECC-Rater Companies to understand the progressive discipline process and its role in that process so that the company can be proactive in managing its employed ECC-Raters. A rigorous training curriculum is necessary to ensure each ECC-Rater Company is able to adhere to its responsibilities which assist in reducing wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)3Biii

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater Company understands the quality assurance process for both the ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that the training for ECC-Rater Companies is consistent regardless of the ECC-Provider. Quality assurance is a critical component of the ECC Program and requires that ECC-Rater Companies be aware of the process and its role in that process. A rigorous training curriculum is necessary to ensure each ECC-Rater Company is able to adhere to its responsibilities which assist in reducing wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)3Biv

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater Company is aware of the conflict-of-interest requirements for both the ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that the training for ECC-Rater Companies is consistent regardless of the ECC-Provider. Conflict of interest is a difficult requirement to verify compliance and is the primary source of complaints and investigations. It is critical that the ECC-Rater Companies understand how the conflict-of-interest regulations apply to both the ECC-Rater and the ECC-Rater Company. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)3Bv

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater Company understands the prohibition limits for both the ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that the training for ECC-Rater Companies is consistent regardless of the ECC-Provider. Prohibition limitations are the basis of the conflict-of-interest requirements. They may apply to either (or both) the ECC-Rater and ECC-Rater Company. The ECC-Rater Company has responsibilities to

actively enforce the conflict-of-interest prohibitions as part of the progressive discipline process. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the requirements for ECC-Rater Company certification as well as the responsibilities of the ECC-Provider upon certification.

**Necessity:** This addition is necessary to ensure that the certification process is similar regardless of the ECC-Provider. These requirements help ensure that an ECC-Rater Company is consistently regulated regardless of the ECC-Provider so as not to give any one ECC-Provider an unfair advantage. A properly regulated ECC-Rater Company certification process ensures the relevant requirements can be easily enforced, which in turn ensures ECC-Raters are able to determine accurately and consistently building standard compliance which reduces wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish both the limits (a single code cycle) and requirements (required training and passing tests) to certify an ECC-Rater Company.

**Necessity:** This addition is necessary to make ECC-Rater Company training a requirement for certification. A properly regulated ECC-Rater Company certification process ensures the relevant requirements can be easily enforced, which in turn ensures ECC-Raters are able to determine accurately and consistently building standard compliance which reduces wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide a written agreement of conduct and rights between the ECC-Provider and ECC-Rater Company.

**Necessity:** This addition is necessary to help establish the roles, responsibilities, and rights of the ECC-Rater Company while making clear the ECC-Rater Company will comply with all applicable laws and requirements. A properly regulated ECC-Rater Company certification process ensures the relevant requirements can be easily enforced, which in turn ensures ECC-Raters are able to determine accurately and consistently building standard compliance which reduces wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to create a publicly available list that will allow the public to independently identify a certified ECC-Rater Company.

**Necessity:** This addition is necessary to track ECC-Rater Companies and their current certification status. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to clarify that only companies that meet the requirements stated are eligible for certification. This prevents ineligible ECC-Rater Companies from being certified.

**Necessity:** This addition is necessary to protect the reputation of the ECC program. A good reputation of the ECC program may encourage further participation and therefore increase energy efficiency through aggressive testing and verification, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to make plain that the ECC-Rater Companies do not need to update their training or certification with the new code cycle after initial certification if the company maintains its eligibility under section 10-103.3(f)1B.

**Necessity:** This addition is necessary because the changes likely in a code cycle that would affect the ECC-Rater Company training are minimal and would not result in better performance or compliance.

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

**Specific Purpose:** The purpose of this addition is to allow the public to independently identify a certified ECC-Rater Company by requiring ECC-Providers to maintain a list of all certified ECC-Rater Companies.

**Necessity:** This addition is necessary to track ECC-Rater Companies and their current certification status. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business (not personal) contact information of the certified ECC-Rater Company certified primary.

**Necessity:** This addition is necessary to protect the personal information of the ECC-Rater Company certified primary while allowing the public to identify the Rater by their contact information. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business contact information of the certified ECC-Rater Company.

**Necessity:** This addition is necessary to allow the public to identify the Rater Company by their contact information. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business contact information of the certified ECC-Rater Company.

**Necessity:** This addition is necessary to allow the public to identify the Rater Company by their contact information. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business contact information of the certified ECC-Rater Company.

**Necessity:** This addition is necessary to allow the public to identify the Rater Company by their contact information. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business contact information of the certified ECC-Rater Company.

**Necessity:** This addition is necessary to allow the public to identify the Rater Company by their contact information. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the business contact information of the certified ECC-Rater Company.

**Necessity:** This addition is necessary to allow the public to identify the Rater Company by their contact information. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to make public the certification status of the ECC-Rater Company.

**Necessity:** This addition is necessary not only for the public but also for the CEC investigation into ECC-Rater Company misconduct. It is essential that when an ECC-Rater Company is disciplined that the public and industry is reasonably informed and can act accordingly. It is additionally important to aid the CEC in its investigations. A publicly accessible list increases accountability and the overall reputation of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to maintain a record of ECC-Rater Companies that will offer services beyond field verification and diagnostic testing.

**Necessity:** This addition is necessary to allow the CEC and local enforcement agencies to verify that an ECC-Rater Company can offer services beyond field verification and diagnostic testing without undue influence on the ECC-Rater and to preserve the ECC-Rater third-party, independent status from the builder. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine

building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to give ECC-Providers a list of accomplishable quality assurance measures that can be effective in terms of identifying problematic ECC-Raters and ECC-Rate Companies.

**Necessity:** This addition is necessary to address the ongoing issue of quality assurance with the ECC program. Accurate field verification testing is necessary to be able to identify inefficient installations. If these verifications are conducted incorrectly, they will result in waste and higher costs to occupants. Quality assurance ensures data collected and reported is accurate. Quality assurance verification is also necessary to identify bad actors among ECC-Raters and ECC-Rater Companies. A robust quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the need and qualifications of quality assurance staff that the ECC-Provider must hire. Quality assurance staff may not include active ECC-Raters and are subject to the same standards of required conduct as others conducting field verification and diagnostics, additionally, they themselves are subject to Quality Assurance review.

**Necessity:** This addition is necessary to address staff shortages that may result in inadequate quality assurance that do not meet the requirements. The addition is also necessary to maintain the integrity and impartiality of quality assurance staff. A robust quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to recognize and reward a superior ECC-Rater that has demonstrated that they are capable of trustworthy field verification and diagnostic testing with a significantly reduced quality assurance rate.

**Necessity:** This addition is necessary to allow a greater encouragement of ECC-Raters to perform at a higher level. Verified ECC-Raters are conferred benefits not conferred to non-verified raters. Exemplary ECC-Raters are more likely to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to remind the Verified Rater that this designation can be revoked.

**Necessity:** This addition is necessary to ensure that verified ECC-Raters are still checked for quality assurance. If a verified ECC-Rater fails a quality assurance check, they may lose their status. This ensures they maintain their high quality of work. A robust quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the Verified ECC-Rater to advertise their status and set themselves apart from other ECC-Raters.

**Necessity:** This addition is necessary to allow the use of CEC designations in advertisements. The designation and allowed marketing materials incentivize the ECC-Rater to accurately carry out the ECC-program, benefitting the Rater through increased business. Exemplary ECC-Raters are more likely to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish three types of quality assurance audits that are to be performed by the ECC-Provider on the ECC-Rater.

**Necessity:** This addition is necessary to ensure that the quality assurance procedures are consistent regardless of the ECC-Provider. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to reframe how and when onsite audits are to be used in the future by ECC-Providers.

**Necessity:** This addition is necessary to address to the ongoing issue of ECC-Providers be unable to perform enough onsite audit in the past. Onsite audits are used as a quality assurance tool by the ECC-Provider and the CEC. The CEC requires that each ECC-Rater be audited onsite once per year. The ECC-Provider can, as part of its investigation authority, include additional onsite audits at its discretion. Onsite audits provide a means to evaluate the actions of an ECC-Rater in the field. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC

Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish when an onsite audit can be performed, an onsite audit should not be performed while an ECC-Rater is on the project site.

**Necessity:** This addition is necessary to prevent the ECC-Rater from influencing the ECC-Provider auditor. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to limit notification to the ECC-Rater regarding the audit until the audit is complete.

**Necessity:** This addition is necessary to prevent the ECC-Rater from altering the field verification and diagnostic test for the project in preparation for the audit. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the minimum requirements of an onsite audit.

**Necessity:** This addition is necessary to ensure that onsite audits are consistent regardless of the ECC-Provider. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to verify the registered certificate of installation and certificate of verification for the project.

**Necessity:** This addition is necessary to establish a basis for comparison in an onsite audit. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building

energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)5Cic(ii)

**Specific Purpose:** The purpose of this addition is to duplicate the field verification or diagnostic test performed by the ECC-Rater for the onsite audit.

**Necessity:** This addition is necessary to verify the efficacy of the ECC-Rater's field verification or diagnostic test. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the passing criteria for an onsite audit.

**Necessity:** This addition is necessary to ensure consistent passing criteria regardless of ECC-Provider. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include an inspection of the certification of installation and verification regarding false, inaccurate, or incomplete information.

**Necessity:** This addition is necessary to ensure that the registered documents are not fabricated. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)5Cid(ii)

**Specific Purpose:** The purpose of this addition is to establish that passing the auditor field verification and diagnostic test is sufficient to show a pass on the audit.

**Necessity:** This addition is necessary to avoid engaging in obtuse measurements of accuracy and focusing on the objective of the field verification and diagnostic testing. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to perform an onsite audit when it is engaged in an investigation of a homeowner complaint about a field verification or diagnostic test.

**Necessity:** This addition is necessary to encourage the ECC-Provider to take complaints and investigations seriously. Conducting an onsite audit after a complaint increases public confidence in the ECC program and assists in identifying faulty field verification and diagnostic tests that would have otherwise gone unnoticed. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the frequency of sample group onsite audits.

**Necessity:** This addition is necessary to address an overall misunderstanding regarding ECC-Provider quality assurance audits for sample groups. The requirement makes clear that onsite audits are required at specific intervals. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to test both the untested home and the tested home within the same sample group.

**Necessity:** This addition is necessary to test both the ECC-Provider's abilities as well as the subcontractor's ability to perform the field verification and diagnostic tests. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to encourage the developer to allow the ECC-Provider to conduct the sample grouped onsite audit, otherwise the sample groups will be considered conflicted data.

**Necessity:** This addition is necessary because the ECC-Provider does not have a right of entry in the same way a local jurisdiction inspector does. Therefore, an incentive

must be placed for the developer to grant testing access. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the actions an ECC-Provider must take if a developer refuses the auditor access.

**Necessity:** This addition is necessary to prevent the ECC-Rater or ECC-Rater Company from influencing the developer. The ECC-Provider must be able to confirm the results of an ECC Rater or Company, in the absence of this, the Provider must investigate to confirm the accuracy of submitted data. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to use the progressive discipline in response to a failed onsite audit of a sample group.

**Necessity:** This addition is necessary to redress ECC-Raters that have falsified a sample group field verification and diagnostic test. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the use of photographic evidence for onsite audits.

**Necessity:** This addition is necessary to codify the current best practice of ECC-Provider performing onsite audits. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish shadow audits to verify ECC-Rater inspection of quality insulation installations. Shadow audits are a quality assurance measure to help ensure that ECC-Raters are performing the quality insulation installation inspections to code. They are required once per year for each ECC-Rater or at the discretion of the ECC-Provider or CEC.

**Necessity:** This addition is necessary to address one of the most abused energy efficiency measures provided by the Energy Code. Quality insulation installation is a visual inspection of the wall assembly at various stages of construction. As such, it is often overlooked. This gives rise to builders pressuring ECC-Raters to falsify the quality insulation installation inspection documentation. There is no effective means of verifying the validity of an ECC-Rater inspection other than shadow auditing. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Rater to be advised that they are being audited on the day of the audit. The auditor must also be granted entry by the homeowner, if they are not, the audit will be rescheduled.

**Necessity:** This addition is necessary because there is no other means of verifying that an ECC-Rater can or has correctly inspected a quality insulation installation. Auditors may not enter without permission and must be granted access; this is accounted for through mandatory rescheduling. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that developer do not refuse an ECC-Provider auditor when the development is using quality insulation installation. If an auditor is refused entry, the data registry will not accept sample-based compliance documents.

**Necessity:** This addition is necessary to encourage cooperation from the developer for access to the project site because the ECC-Provider auditor does not have a right of entry. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to clearly establish that shadow audits are used only for quality insulation installations.

**Necessity:** This addition is necessary to prevent the shadow audit from being misused. While shadow audits are the only means to verify that an ECC-Rater is correctly following the quality insulation installation inspection procedures, it is a less effective

means of quality assurance for most any other purpose. The primary quality assurance for all ECC-Rater field verifications and diagnostic tests is onsite auditing. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** This addition is reserved to preserve the number of the sections that follow.

**Necessity:** Staff determined that this addition was not necessary based on comments received. It is important to maintain the numbering of the sections that follow because they are references throughout Section 10-103.3.

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

**Specific Purpose:** The purpose of this addition is to require proper documentation and notification of the audit results in the quality assurance database, those results must be documented by the ECC-Provider and provided to the ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to encourage proper documentation of ECC-Rater inspections of quality insulation installations. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide progressive discipline for an ECC-Rater that fails the shadow audit.

**Necessity:** This addition is necessary to require consistent disciplinary action regardless of the ECC-Provider while incentivizing the ECC-Rater to conduct accurate testing. Progressive discipline encourages accurate testing which helps to identify inadequate building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** This addition is reserved to preserve the number of the sections that follow.

**Necessity:** Staff determined that this addition was not necessary based on comments received. It is important to maintain the numbering of the sections that follow because they are references throughout Section 10-103.3.

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

**Specific Purpose:** The purpose of this addition is to establish desk audits to verify the inspections of ECC-Raters across all field verifications and diagnostic tests. Desk audits will require an ECC-Provider to evaluate the registered compliance documents in the data registry of ECC-Raters once per year. Verified ECC-Raters will instead only be subject to desk audits every code cycle.

**Necessity:** This addition is necessary to ensure that quality assurance is implemented consistently regardless of the ECC-Provider. Desk audits are an effective tool to determine if an ECC-Rater is consistently falsifying compliance documentation by comparing disparate projects for the same ECC-Rater as well as comparing ECC-Raters to each other on similar projects. This creates a foundation of expected results for field verification and diagnostic testing performed by ECC-Raters. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to develop maximum variances for each data entry so that future desk audits may be streamlined using consistent criteria.

**Necessity:** This addition is necessary to improve quality assurance audits and the reputation of the ECC program. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to direct an ECC-Provider towards a project site and provide guidance on what documents to consider when auditing a site. The auditor may do this by collecting compliance documents and contacting the local building authority.

**Necessity:** This addition is necessary to ensure that ECC-Providers do not initially rely on generalizations for a desk audit. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to compare desk audits to expected tolerances.

**Necessity:** This addition is necessary to provide a foundation for expectations and possible further investigation. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to expand the focused desk audit to other field verifications and diagnostic tests performed by the same ECC-Rater. If irregularities are discovered, the ECC-Provider will investigate further to determine if test results were falsified or are inaccurate.

**Necessity:** This addition is necessary to ensure that ECC-Raters are not copying field verifications and diagnostic tests from one project and using them in other projects. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to document the desk audit results for the ECC-Provider, ECC-Rater, and ECC-Rater Company.

**Necessity:** This addition is necessary to enable the ECC-Rater and ECC-Rater Company to be advised regarding the results of the desk audit on whether the results are either positive or negative. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to connect the failed desk audit with the progressive discipline requirements for the ECC-Rater and possibly the ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that desk audit results are consistently treated regardless of the ECC-Provider. The addition creates a consequence through progressive discipline for failing a desk audit, thereby revealing inaccuracies and improving accuracy over time benefiting energy efficiency and reducing waste. Progressive discipline encourages accurate testing which helps to identify inadequate building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to address the issue of a flawed field verification and diagnostic test discovered during an audit.

**Necessity:** This addition is necessary to ensure that there is a remedy in place for when flawed testing is discovered. The additions create a clear path for efficient resolutions. Clear and expeditious pathways for remedying inaccurate ECC ratings are necessary to reduce wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to define what qualifies as a flawed field verification or diagnostic test.

**Necessity:** This addition is necessary to ensure that only flawed tests are qualified for remedies. Clear and expeditious pathways for remedying inaccurate ECC ratings are necessary to reduce wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to make the ECC-Provider responsible to remedy the flawed field verification or diagnostic test.

**Necessity:** Shifting the remedy to the provider removes the burden from an inexperienced party, most likely the homeowner, who would have had to seek redress for the faulty test results. Clear and expeditious pathways for remedying inaccurate ECC ratings are necessary to reduce wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish that the remedy to a flawed field verification or diagnostic test is to provide the audit (of the same test) performed by the ECC-Provider to the homeowner (or hiring party).

**Necessity:** This addition is necessary so as to not overburden the ECC-Provider with unnecessary costs and limit the cost of remedying flawed test results only to that of the boundaries of the ECC program. Clear and expeditious pathways for remedying inaccurate ECC ratings are necessary to reduce wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to charge the ECC-Rater a quality assurance fee meant to cover the expenses of providing the required audits.

**Necessity:** This addition is necessary to aid the ECC-Provider in performing its required quality assurance audits for the ECC-Rater field verifications and diagnostic tests. A robust and consistent quality assurance system is essential to confirm the efficacy of the ECC Program, which is necessary to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)6

**Specific Purpose:** The purpose of this addition is to require ECC-Providers to create a queries and complaints process for the public and governing agencies.

**Necessity:** This addition is necessary to ensure that complaints and queries are addressed consistently regardless of the ECC-Provider. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6A

**Specific Purpose:** The purpose of this addition is to establish the scope and basic actions that an ECC-Provider must take when receiving a complaint or query. The addition requires the ECC-Provider to respond to complaints in a timely manner, ensure ECC-Raters notify complaints about the complaint process, retain records of complaints, and report a summary of all complaints to the Commission annually.

**Necessity:** This addition is necessary to prevent the ECC-Provider from having to take extreme measures for every complaint received or relegating all complaints to a backlog. The addition creates an orderly framework of how complaints should be handled for efficient processing and reporting. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6Ai

**Specific Purpose:** The purpose of this addition is to establish the minimum requirements of the queries and complaints annual summary, which includes a tracking number for each query or complaint in the ECC-Providers tracking system.

**Necessity:** This addition is necessary to ensure a consistent reporting to the CEC regardless of the ECC-Provider. A tracking number is a simple means of allowing the CEC to verify that all complaints or queries have been addressed and which ones need to be investigated further. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6Aii

**Specific Purpose:** The purpose of this addition is to establish the minimum requirements of the queries and complaints annual summary, which includes the name and contact information of the person submitting the query or complaint.

**Necessity:** This addition is necessary to ensure a consistent reporting to the CEC regardless of the ECC-Provider. The contact information allows the CEC to follow up with the individual submitting the query or complaint to verify that the ECC-Provider is following its protocols in compliance with the regulations. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6Aiii

**Specific Purpose:** The purpose of this addition is to establish the minimum requirements of the queries and complaints annual summary, which includes a summary of the query or complaint.

**Necessity:** This addition is necessary to ensure a consistent reporting to the CEC regardless of the ECC-Provider. A summary of the query or complaint allows the CEC to understand its nature and evaluate if it is something that the CEC should follow up on. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6Aiv

**Specific Purpose:** The purpose of this addition is to establish the minimum requirements of the queries and complaints annual summary, which includes a summary of the result of the ECC-Provider's investigation and related actions.

**Necessity:** This addition is necessary to ensure consistent reporting to the CEC regardless of the ECC-Provider. A summary of the results of the ECC-Provider actions is important for the CEC to evaluate and verify that the ECC-Provider is in compliance with its policies and the Energy Code requirements. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6Av

**Specific Purpose:** The purpose of this addition is to establish the minimum requirements of the queries and complaints annual summary, which includes a summary of the final outcome of the query or complaint.

**Necessity:** This addition is necessary to ensure a consistent reporting to the CEC regardless of the ECC-Provider. A summary of the resolution achieved by the ECC-Provider allows the CEC to understand the effectiveness of the query and complaints process. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance, and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6B

**Specific Purpose:** The purpose of this addition is to allow the CEC to direct an ECC-Provider to investigate queries related to the performance of the FV&DT and requires the ECC-Provider to respond within 30 days of receiving the direction.

**Necessity:** This addition is necessary to allow proper oversight of the ECC-Provider and address complaints that come to the CEC. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)6C

**Specific Purpose:** The purpose of this addition is to provide a separate means of complaint from ECC-Raters or ECC-Rater Companies to ECC-Providers.

**Necessity:** This addition is necessary because the complaints from ECC-Raters and Rater Companies are more substantive than most any other source of complaint. The additional details allow more expedient investigations and are a good source of identifying potential impropriety among ECC program participants. An accountable ECC Program assists in increasing the overall accuracy of ECC ratings, thereby increasing building standard compliance, and reducing wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)7

**Specific Purpose:** The purpose of this addition is to provide for a fair and balanced approach to progressive discipline for ECC-Raters. If ECC-Raters fail to perform accurate and complete field verification and diagnostic tests, the ECC-Provider must take the prescribed disciplinary steps to correct noncompliance. The ECC-Provider may move toward more severe discipline if violations are severe. The addition also allows ECC-Providers and ECC-raters to extend the timeline for final discipline determination and clarifies that the Commission may direct an ECC-Provider to investigate or discipline an ECC-Rater.

**Necessity:** This addition is necessary to allow the ECC-Provider to discipline bad behavior from ECC-Raters while allowing ECC-Rater recourse to address the findings of the ECC-Provider. The Commission also retains significant authority to direct investigations or discipline in the case the ECC-Provider has not already done so. Progressive ECC-Rater discipline allows the ECC Program to identify and discourage

inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7A

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater reasonable notification of the suspected violation. The addition requires the ECC-Provider to issue a notice of violation to the ECC-Rater and ECC-Rater Company upon violation discovery. The ECC-Rater Company or independent Rater will notify the affected homeowner, with proof of notice to the ECC-Provider. Finally, the ECC-Provider will perform a desk audit on the ECC-Rater.

**Necessity:** This addition is necessary to prevent the unwarranted escalation of penalties by the ECC-Provider. The entire process gives all parties the ability to investigate and respond to issues without unreasonable penalties being forced upon ECC-Raters. At the same time, these procedures allow the ECC-Provider and CEC to deal effectively with ECC-Raters that are not performing the field verification and diagnostic testing per code. Progressive ECC-Rater discipline allows the ECC Program to identify and incentivize improved rating accuracy so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7Ai

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to mandate further training for the violating ECC-Rater or another corrective action related to the violation within a specified timeframe.

**Necessity:** This addition is necessary to ensure that the corrective action, or additional training is appropriate and relevant for the violation, so that the ECC-Rater may learn from their mistake. Additional training or other corrective action makes inaccurate test results less likely. Progressive ECC-Rater discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7Aii

**Specific Purpose:** The purpose of this addition is to ensure that the homeowner is made whole by the ECC-Rater or ECC-Rater Company and not the ECC-Provider by requiring the ECC-Rater or ECC-Rater Company to cover the costs of the original field testing and any necessary retesting due to the violation.

**Necessity:** This addition is necessary to prevent the ECC-Provider from being unreasonably burdened by the actions of its certified ECC-Raters or Rater Companies while discouraging ECC-Raters and ECC-Rater Companies from submitting faulty test results. Progressive ECC-Rater discipline allows the ECC Program to identify and

discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7Aiii

**Specific Purpose:** The purpose of this addition is to specify what elements must be contained in the notice of violation to the ECC-Rater.

**Necessity:** This addition is necessary to ensure that the ECC-Rater can respond fully within the time allotted. Progressive ECC-Rater discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7Aiv

**Specific Purpose:** The purpose of this addition is to describe the time limits that the ECC-Rater has to respond to the notice of violation issued by the ECC-Provider.

**Necessity:** This is necessary to allow the ECC-Rater to respond without allowing the Rater to hold up the proceeding. Progressive ECC-Rater discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7B

**Specific Purpose:** The purpose of this addition is to establish a second step in the progressive disciplinary process for ECC-Raters who fail to comply with the notice of violation within the time or receive a second notice of violation within a three-month period. The ECC-Provider will then issue a notice to the ECC-Rater and any ECC-Rater company for which the ECC-Rater conducts testing for, placing the ECC-Rater on probation for up to 6 months.

**Necessity:** This addition is necessary to address ECC-Raters that do not timely respond to the notice of violation or have numerous violations. The progressive discipline is needed to incentivize the violating ECC-Rater to comply with sanctions placed upon them, or to more closely scrutinize an ECC-Rater who has been sanctioned with more than one violation. Progressive ECC-Rater discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7Bi

**Specific Purpose:** The purpose of this addition is to require retraining of the ECC-Rater as related to the notice of violation. This is accomplished through retaking the training for both written and laboratory portions related to the violated regulations.

**Necessity:** This is necessary to keep the penalty within the scope of the violation. Progressive ECC-Rater discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and the wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)7Bii

**Specific Purpose:** The purpose of this addition is to provide a written notice to the ECC-Rater of the regulatory requirements and violation, time of violations, parties affected, corrective actions the ECC-Rater must take, costs to be reimbursed, and the timeframe for complying with all requirements of the notice of violation.

**Necessity:** This addition is necessary to allow the ECC-Rater to respond to their probational status, has a full understanding of what was done incorrectly, and may take steps to address the disciplinary action. This addition is necessary to prevent an ECC-Rater from undermining the integrity of the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7Biii

**Specific Purpose:** The purpose of this addition is to describe the time limits that the ECC-Rater has to respond to the notice of probation issued by the ECC-Provider.

**Necessity:** This is necessary to allow the ECC-Rater to respond without allowing the Rater to hold up the proceeding. This addition is necessary to prevent an ECC-Rater from undermining the integrity of the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7C

**Specific Purpose:** The purpose of this addition is to address an ECC-Rater who fails to Fully comply with the terms of probation or receives a new notice of violation while on probation. The ECC-Provider shall issue a notice of suspension to the ECC-Rater and any ECC-Rater Company the ECC-Rater tests for.

**Necessity:** This addition is necessary to prevent an ECC-Rater from undermining the ECC program reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7Ci

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater with a notice of suspension which describes the basis for suspension, duration, and corrective actions the ECC-Rater must complete during the suspension.

**Necessity:** This addition is necessary to allow the ECC-Rater the opportunity to address the notice of suspension. This addition is necessary to prevent an ECC-Rater from undermining the ECC program reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7Cii

**Specific Purpose:** The purpose of this addition is to provide a time frame for the ECC-Rater to respond to the notice of suspension.

**Necessity:** This addition is necessary to allow the ECC-Rater time to reply to the suspension without allowing the Rater to obstruct the process. This addition is necessary to prevent an ECC-Rater from undermining the ECC Program reputation. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7Ciii

**Specific Purpose:** The purpose of this addition is to prevent the ECC-Rater from submitting further field verifications and diagnostic tests to the ECC-Provider data registry once the suspension is in place.

**Necessity:** This addition is necessary to prevent an ECC-Rater from undermining the integrity of the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7D

**Specific Purpose:** The purpose of this addition is to remove an ECC-Rater that will not comply with the progressive discipline process. If an ECC-Rater fails to comply with the terms of suspension or receives a new notice of violation while suspended, or pending a suspension, the ECC-Provider shall issue a notice of decertification to the ECC-Rater and any ECC-Rater Company the ECC-Rater tests for.

**Necessity:** This addition is necessary to prevent an ECC-Rater from undermining the integrity of the ECC program. A reputable ECC Program is necessary to encourage

widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7Di

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater with a notice of decertification, explaining why they were decertified.

**Necessity:** This addition is necessary to allow the ECC-Rater the ability to respond to the notice prior to being decertified. This addition is necessary to prevent an ECC-Rater from undermining the integrity of the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)7Dii

**Specific Purpose:** The purpose of this addition is to provide a time frame for the ECC-Rater to respond to the notice of decertification.

**Necessity:** This addition is necessary to allow the ECC-Rater time to reply to the decertification without allowing the Rater to obstruct the process. This addition is necessary to prevent an ECC-Rater from undermining the integrity of the ECC program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)8

**Specific Purpose:** The purpose of this addition is to provide for a fair and balanced approach to progressive discipline for ECC-Rater Companies. The addition requires the ECC-Provider to issue a notice of violation to the ECC-Rater Company upon discovery of a violation. A severe violation may result in immediate suspension or decertification. The ECC-Provider and ECC-Rater Company may extend the time for written responses. Finally, at any time the Executive Director may direct the ECC-Provider to investigate an ECC Rater company or discipline an ECC-Rater Company.

**Necessity:** This addition is necessary to allow the ECC-Provider to discipline bad behavior from ECC-Rater Companies while allowing ECC-Rater Companies recourse to address the findings of the ECC-Provider. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8A

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater Company reasonable notification of the suspected violation. Upon discovery of a violation the addition requires the ECC-Provider to issue a notice of violation to the ECC-Rater Company and any affected homeowners.

**Necessity:** This addition is necessary to prevent the unwarranted escalation of penalties by the ECC-Provider. The homeowner typically is victimized by the ECC-Rater that falsified the data entries into the ECC-Provider data registry and is just as typically not notified of any findings by the ECC-Provider. This addition allows the homeowner to take action against an ECC-Rater as they see fit. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8Ai

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to mandate further training for the violating ECC-Rater Company or another corrective action related to the violation within a specified timeframe.

**Necessity:** This addition is necessary to ensure that the corrective action, or additional training is appropriate and relevant for the violation, so that the ECC-Rater Company may learn from their mistake. Additional training or other corrective action makes inaccurate test results less likely. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided as directed by PRC 25402.

**Section:** 10-103.3(d)8Aii

**Specific Purpose:** The purpose of this addition is to ensure that the homeowner is made whole by the ECC-Rater or ECC-Rater Company and not the ECC-Provider by requiring the ECC-Rater Company to cover the costs of the original field testing and any necessary retesting due to the violation.

**Necessity:** This addition is necessary to prevent the ECC-Provider from being unreasonably burdened by the actions of its certified ECC-Raters or Rater Companies while discouraging ECC-Raters and ECC-Rater Companies from submitting faulty test results. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8Aiii

**Specific Purpose:** The purpose of this addition is to specify what elements must be contained in the notice of violation to the ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that the ECC-Rater Company can respond fully within the time allotted. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8Aiv

**Specific Purpose:** The purpose of this addition is to describe the time limit that the ECC-Rater Company has to respond to the notice of violation issued by the ECC-Provider.

**Necessity:** This is necessary to allow the ECC-Rater Company to respond without allowing the Rater Company to hold up the proceeding. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8B

**Specific Purpose:** The purpose of this addition is to establish a second step in the progressive disciplinary process for ECC-Rater Companies that fail to comply with the notice of violation within the time allotted or receive a second notice of violation within a three-month period. The ECC-Provider will then issue a notice of probation to the ECC-Rater company.

**Necessity:** This addition is necessary to address ECC-Raters Companies that do not respond (at all) to the notice of violation or have numerous violations. The progressive discipline is needed to incentivize the violating ECC-Rater Company into complying with sanctions placed upon them. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8Bi

**Specific Purpose:** The purpose of this addition is to provide a notice to the ECC-Rater Company of probation, including the basis for probation, the duration of probation, and all corrective action the ECC-Rater Company must complete during probation.

**Necessity:** This addition is necessary to allow the ECC-Rater Company to respond to its probational status, has a full understanding of what was done incorrectly, and may take steps to address the disciplinary action. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8Bii

**Specific Purpose:** The purpose of this addition is to describe the time limit that the ECC-Rater Company has to respond to the notice of probation issued by the ECC-Provider.

**Necessity:** This is necessary to allow the ECC-Rater Company to respond without allowing the Rater Company to hold up the proceeding. Progressive ECC-Rater Company discipline allows the ECC Program to identify and discourage inaccurate ECC ratings so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is avoided, as directed by PRC 25402.

**Section:** 10-103.3(d)8C

**Specific Purpose:** The purpose of this addition is to address an ECC-Rater Company that fails to fully comply with the terms of probation or receives a new notice of violation while on probation. The ECC-Provider shall issue a notice of suspension to the ECC-Rater Company if this occurs.

**Necessity:** This addition is necessary to prevent an ECC-Rater Company from undermining the ECC program reputation. This addition is necessary to prevent an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)8Ci

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater Company with a notice of suspension which describes the basis for suspension, duration, and corrective actions the ECC-Rater must complete during the suspension.

**Necessity:** This addition is necessary to allow the ECC-Rater Company the opportunity to address the notice of suspension.

**Section:** 10-103.3(d)8Cii

**Specific Purpose:** The purpose of this addition is to prevent the ECC-Rater Company from submitting further field verifications and diagnostic tests to the ECC-Provider data registry.

**Necessity:** This addition is necessary to prevent an ECC-Rater Company from undermining the integrity of the ECC program. This addition is necessary to prevent an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)8Ciii

**Specific Purpose:** The purpose of this addition is to provide a time frame for the ECC-Rater Company to respond to the notice of suspension.

**Necessity:** This addition is necessary to allow the ECC-Rater Company time to reply to the suspension without allowing the Rater Company to obstruct the process.

**Section:** 10-103.3(d)8D

**Specific Purpose:**

The purpose of this addition is to remove an ECC-Rater Company that will not comply with the progressive discipline process. If an ECC-Rater Company fails to comply with the terms of suspension, receives a new notice of violation while suspended, or has a suspension pending, the ECC-Provider shall issue a notice of decertification to the ECC-Rater Company.

**Necessity:** This addition is necessary to prevent an ECC-Rater Company from undermining the integrity of the ECC program. This addition is necessary to prevent an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)8Di

**Specific Purpose:** The purpose of this addition is to provide the ECC-Rater Company with a notice if decertification.

**Necessity:** This addition is necessary to allow the ECC-Rater Company the ability to respond to the notice prior to being decertified.

**Section:** 10-103.3(d)8Dii

**Specific Purpose:** The purpose of this addition is to provide a time frame for the ECC-Rater Company to respond to the notice of decertification.

**Necessity:** This addition is necessary to allow the ECC-Rater Company time to reply to the decertification without allowing the Rater Company to obstruct the process.

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

**Specific Purpose:** The purpose of this addition is to identify what data an ECC-Provider must record.

**Necessity:** This addition is necessary in addition to the requirements in JA7 to ensure that all field verifications and diagnostic tests can be explained and verified. Data recording creates a clear record of ECC Ratings so that building energy efficiency

standards are properly tracked and maintained. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to record field verification and diagnostic testing data collected by its certified ECC-Raters.

**Necessity:** This addition is necessary in addition to the requirements in JA7 to ensure that all field verifications and diagnostic tests can be explained and verified. Data recording creates a clear record of ECC Ratings so that building energy efficiency standards are properly tracked and maintained. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include the normal required data recording as provided in Reference Appendix JA7. This includes the Certificate(s) of Compliance, Certificate(s) of installation, and Certificate(s) of Verification in both their data entry format as well as their PDF format.

**Necessity:** This addition is necessary to incorporate and not duplicate the recording requirements of JA7. These compliance documents are generally required to be recorded by the ECC-Provider in JA7. By referencing these documents, the ECC-Provider is required to follow the data registry requirements in JA7 without having to duplicate those requirements here. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the recording of additional information not required in JA7. The data registry must be able to identify the efficiency measure being tested by the ECC-Rater.

**Necessity:** This addition is necessary to ensure a consistent data recording regardless of the ECC-Provider. There can be many similar efficiency measures on one project that all need to be verified by the ECC-Rater. Identifying them individually is critical. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the recording of additional information regarding sampling not required in JA7. Homes inspected as part of a sample group are not recorded according to the requirements in JA7 but must be recorded by the data registry.

**Necessity:** This addition is necessary to ensure a consistent data recording regardless of the ECC-Provider. Homes inspected as part of a sample group might not be the actual tested home. As a result, the only way for a homeowner to know if their home was inspected is to have a report from the ECC-Provider identifying their sample group and tested home. This information is also important to the CEC for quality assurance purposes. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the recording of additional information regarding sampling not required in JA7. Initial testing (testing the first unit) is performed ECC-Rater to instruct the subcontractor on proper installations.

**Necessity:** This addition is necessary to ensure a consistent data recording regardless of the ECC-Provider. Initial testing is a requirement in the Energy Code and is a necessary tool to help ensure that subcontractors are properly trained on code compliant installations. It is necessary to record the initial testing home or unit to allow the CEC to verify that the developer is in compliance with the Energy Code requirements. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the recording of additional information regarding sampling not required in JA7. Only one home in a sample group (of seven) is tested by the ECC-Rater. The tested home must be recorded for reference and quality assurance purposes.

**Necessity:** This addition is necessary to ensure a consistent data recording regardless of the ECC-Provider. Sample groups allow an ECC-Rater to curtail the number of field verifications and diagnostic testing that must be performed on a development. One in seven homes is tested for each sample group. The ECC-Provider data registry must be able to record which home was tested for each energy efficiency measure installed. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the recording of additional information regarding sampling not required in JA7. If a tested home in a sample group fails, a second home can be tested to potential pass the rest of the sample group. This is referred to as retesting.

**Necessity:** This addition is necessary to ensure a consistent data recording regardless of the ECC-Provider. Just as a tested home must be identified in a Sample Group, if a home is retested, it must also be identified. This allows the homeowner to know of the

initial issues (failed test) and allows the ECC-Provider as well as the CEC to potentially evaluate the retested home to verify code compliance. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the recording of additional information regarding sampling not required in JA7. Failed testing in a sample group can result in corrective action being taken for the tested home or the entire sample group.

**Necessity:** This addition is necessary to ensure a consistent data recording regardless of the ECC-Provider. The home that produced a failed test can be corrected and tested again, as can the entire sample group. This information is important to include in the ECC-Provider data registry not only for the homeowner but also to indicate whether quality assurance audits are warranted. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the recording of additional information regarding sampling not required in JA7. After occupancy, a homeowner can decline verification testing for a home that failed.

**Necessity:** This addition is necessary to ensure a consistent data recording regardless of the ECC-Provider. When a homeowner occupies the home and later discovers that the home was part of a failed sample group, the homeowner can decline further testing and corrective action. If so, the ECC-Provider data registry must be able to identify this decision by the homeowner. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to record quality assurance actions taken.

**Necessity:** This addition is necessary to create an enforceable record and allow the CEC to oversee the ECC-Provider quality assurance actions. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to record all quality assurance and disciplinary actions taken against each ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that this data is recorded consistently regardless of the ECC-Provider and allow the CEC to oversee the ECC-Providers' actions. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to maintain a database (separate from the data registry system) to record the certification status, disciplinary actions, and quality assurance actions of all ECC-Raters and ECC-Rater Companies.

**Necessity:** This addition is necessary to ensure that the quality assurance database does not interfere with the data registry. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify the quality assurance data that must be recorded by the ECC-Provider.

**Necessity:** This addition is necessary to ensure that the quality assurance data recorded is similar regardless of the ECC-Provider. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to identify quality assurance data to the ECC-Rater or ECC-Rater Company through common contact information such as name and address.

**Necessity:** This addition is necessary to verify the quality assurance status of each ECC-Rater and ECC-Rater Company. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to limit the status of certification of ECC-Raters and ECC-Rater Companies to specific identifiers for use in posting to the public by the ECC-Provider.

**Necessity:** This addition is necessary to maintain a consistent certification status regardless of the ECC-Provider. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide a simple summary of the required audits that resulted in a pass for each ECC-Rater and ECC-Rater Company.

**Necessity:** This addition is necessary to simplify the quality assurance database so as not to duplicate recordings by the ECC-Provider. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide for the recording of specific audits that resulted in a pass.

**Necessity:** This addition is necessary to ensure consistency regardless of the ECC-Provider. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide for the recording of specific audits that resulted in a pass.

**Necessity:** This addition is necessary to ensure consistency regardless of the ECC-Provider. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to provide for the recording of specific audits that resulted in a pass.

**Necessity:** This addition is necessary to ensure consistency regardless of the ECC-Provider. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to maintain detailed quality assurance records for a minimum of 5 years that are not required to be reported to the CEC.

**Necessity:** This addition is necessary to allow the ECC-Provider the flexibility to store documentation related to a quality assurance action without specific format or consistency requirements. An accurate record incentivizes code compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to describe the data retention requirement for ECC-Providers.

**Necessity:** This addition is necessary to ensure that the CEC has full access to the data retained by the ECC-Providers. Proper record keeping is necessary to ensure oversight over ECC-Provider actions. An accurate long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require data retention for no less than 10 years in the format it was collected or received.

**Necessity:** This addition is necessary to allow the ECC-Providers to purge its data registry and other databases of outdated information after it is unlikely, they will be needed for verification or other purposes. An accurate long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to maintain a data retention system that can be fully accessed by the CEC.

**Necessity:** This addition is necessary to allow the CEC to oversee the ECC-Provider, ECC-Raters, and ECC-Rater Companies as well as effectively pursue complaint investigations. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to prevent the ECC-Provider from obstructing the CEC's access to the ECC-Provider data registry.

**Necessity:** This addition is necessary to protect the CEC oversight authority of the ECC-Providers. The Commission's attempts at data-driven oversight will be hampered without access to accurate records. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to maintain digital copies of all files that can be indexed and searched unless the Commission authorizes the ECC-Provider to operate without this functionality.

**Necessity:** This addition is necessary because the ECC-Providers originally stored this data in hardcopy format only. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to prevent the ECC-Provider from being required to reformat or alter data collected prior to January 1, 2026.

**Necessity:** This addition is necessary to prevent data retention requirements from causing unforeseen and unnecessary burdens on the ECC-Provider.

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

**Specific Purpose:** The purpose of this addition is to outline the ECC-Provider reporting requirements to the CEC.

**Necessity:** This addition is necessary to ensure consistent reporting from all ECC-Providers. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to maintain a basic representative reporting sample from the ECC-Provider. This can be accomplished by a 10% random sample of buildings field verified and diagnostically tested by ECC-Raters certified by the respective ECC-Provider each year.

**Necessity:** This addition is necessary to maintain this level of reporting until such time as the Commission Compliance Document Repository is approved by the CEC. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to re-establish the annual reporting of field verification and diagnostic testing requirements for ECC-Providers beginning January 1, 2027.

**Necessity:** This addition is necessary to allow the ECC-Provider ample time to design an annual report system for its data registry. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the reporting data in a useful format for the CEC, by organizing the data by climate zone.

**Necessity:** This addition is necessary to allow the CEC to make use of this data in a timely manner. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to supersede 10-103.310A - C once the CEC has approved the Commission Compliance Document Repository. ECC-Providers will have to transmit compliance to the CEC at least once per calendar quarter.

**Necessity:** This addition is necessary to avoid over burdening the ECC-Providers with unnecessary reporting requirements. Once a quarter is sufficient to ensure the Commission can provide adequate oversight while not being too burdensome on an ECC-Provider. An accurate accessible long-term record incentivizes code compliance through increased accountability, thereby reducing wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the quarterly reporting requirements for the ECC-Provider quality assurance activities.

**Necessity:** This addition is necessary to ensure that the quality assurance activities of the ECC-Providers are on track throughout the year. Irregular quality assurance activities flagged in quarterly reports may alert the Commission to potential wrongdoing. Correcting this wrongdoing is integral to a functioning ECC-program. A regular quality assurance report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to report projects that failed their quality assurance testing within the calendar quarter with sufficient specificity. The report must be submitted within 60 days after the end of the calendar quarter and include identifying information, project permit codes, and code violations for each failed audit.

**Necessity:** This addition is necessary to keep the CEC advised regarding failed quality assurance audits within a reasonable time after the audits' findings. A regular quality

assurance report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the quarterly quality assurance report to be submitted to a publicly accessible CEC docket.

**Necessity:** This addition is necessary to allow the public to understand the quality assurance activities of the ECC-Provider. A regular quality assurance report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** This purpose of this addition is to establish the annual quality assurance reporting from the ECC-Providers.

**Necessity:** This addition is necessary to enable the CEC to oversee the quality assurance activities of the ECC-Providers. A regular quality assurance report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the reporting time frame of the annual quality assurance ECC-Provider report, which is submission to the Commission no later than the end of February of the following year.

**Necessity:** This addition is necessary to allow the CEC to confirm ECC-Provider compliance with the quality assurance requirements. A regular quality assurance report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the scope of the annual quality assurance report which includes all specified records within the annual timeframe.

**Necessity:** This addition is necessary to limit the report to only the annual calendar year, this prevents outdated information from cluttering and potentially shrouding relevant data points. A regular quality assurance report increases accountability

throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to describe the contents of the annual quality assurance report. This is done by requiring the annual report to summarize all quality assurance actions taken for each ECC-Rater by the ECC-Provider during the preceding year.

**Necessity:** This addition is necessary to allow the ECC-Provider the ability to summarize and explain in detail all quality assurance activities. This allows the ECC-Provider to show the quality assurance actions taken in tabular form or another simple summary. It also allows the CEC to effectively review the overall actions taken by the ECC-Provider. A regular quality assurance report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the CEC to request detailed quality assurance action records as needed from the ECC-Provider.

**Necessity:** This addition is necessary to allow the CEC to investigate specific quality assurance actions without requiring detailed reporting on all actions. A regular quality assurance report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require annual reporting from ECC-Rater Companies through the ECC-Providers.

**Necessity:** This addition is necessary to allow the CEC to gain a better understanding of the activities and effects that the ECC program has on the construction industry. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require annual reporting of the ECC-Rater Company activities from the ECC-Provider beginning in June 2027.

**Necessity:** This addition is necessary to allow the ECC-Rater Companies and ECC-Providers ample time to provide a systematic means of compliance for this reporting requirement. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require a summary of the progressive discipline actions taken against either the ECC-Rater Companies or the ECC-Raters under its employment.

**Necessity:** This addition is necessary to allow the CEC to verify that ECC-Rater Companies are fulfilling their obligations regarding progressive discipline. This addition references the progressive discipline actions that the ECC-Rater Companies are required to take when an ECC-Rater is disciplined (Sections 10-103.3(f)2H and 10-103.3(e)2G). The annual summary is intended to allow the ECC-Provider and CEC to evaluate the actions taken by the ECC-Rater Company in compliance with these requirements. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to ensure that the ECC-Rater Company annual reports are complete.

**Necessity:** This is necessary to ensure that the CEC can verify ECC-Rater Company activities. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include the compliance status of the ECC-Rater Company principal licensure as well as the license status of the ECC-Rater if they are filing as independent.

**Necessity:** This is necessary to ensure that the CEC can verify ECC-Rater Company and independent ECC-Rater activities. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more

accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include the certification status of all ECC-Raters employed by each ECC-Rater Company.

**Necessity:** This is necessary to ensure that the CEC can verify ECC-Rater Company activities. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include a comparison of the number and type of certificates of verification registered by each ECC-Rater Company employed ECC-Rater when compared to the ECC-Provider data registry.

**Necessity:** This is necessary to ensure that the CEC can verify ECC-Rater Company activities. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to include the cost of services provided by each ECC-Rater Company or independent ECC-Rater. The costs of services may not be identifiable to the Company or Rater but must be separated among climate zone and local jurisdiction.

**Necessity:** This addition is necessary to help the CEC to ascertain the financial impact of field verification and diagnostic testing on the construction industry. An annual report increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to immediately notify the CEC of any ECC-Rater or ECC-Rater Company decertification. If this occurs the Commission will instruct all ECC-Providers to suspend the ECC-Rater or ECC Rater Company's access to data registries.

**Necessity:** This addition is necessary to allow the CEC to prepare for any possible appeal from the ECC-Rater or ECC-Rater Company as well as to allow the CEC to

direct other ECC-Providers to decertify the ECC-Rater or ECC-Rater Company. An up to date and reputable ECC Program will increase the likelihood accurate building energy standard compliance is enforced among reputable ECC participants, so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require ECC-Providers to respond to valid data requests from the CEC.

**Necessity:** This addition is necessary to put a clear process in place rather than rely on an ad hoc process. A clear well understood process for data requests increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to give the CEC the explicit authority to request access to the ECC-Provider data registry.

**Necessity:** This addition is necessary to establish the scope of possible data requests from the CEC. A clear well understood process for data requests increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish a timeline for the ECC-Provider to respond to a data request from the CEC as specified by the Executive Director.

**Necessity:** This addition is necessary to allow the ECC-Provider a reasonable amount of time to respond to CEC data requests as provided by the Executive Director, while still requiring prompt responses from ECC-Providers. A clear well understood process for data requests increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require ECC-Provider to ensure that its data registry and quality assurance database are capable of complying with an CEC data request.

**Necessity:** This addition is necessary to ensure that ECC-Providers do not intentionally make their data registry inaccessible to the CEC. Assigning sole responsibility of maintaining their data registries ensures they aren't able to sidestep responsibility by reassigning responsibility. A clear well understood process for data requests increases accountability throughout the ECC Program. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, lowering wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)13

**Specific Purpose:** The purpose of this addition is to require that the ECC-Providers comply with the data registry requirements included in the Building Efficiency standards, JA7, and Section 10-109.

**Necessity:** This addition is necessary to ensure that the ECC-Provider operates a data registry. An accurate accessible long-term record incentivizes code compliance through increased accountability. Increased accountability likely will encourage more accurate ECC Ratings and building energy standard compliance, thereby reducing wasteful energy consumption, as directed by PRC 25402.

**Section:** 10-103.3(d)14

**Specific Purpose:** The purpose of this addition is to allow for the possibility that the CEC cannot approve any ECC-Providers for a code cycle. If this occurs, the Commission may act as the ECC-Provider or suspend all or a portion of the FV&DT program.

**Necessity:** This addition is necessary to address a long-standing issue of compliance with the Energy Code in the event that there are no approved ECC-Providers. This provision allows the CEC to become the de facto Provider of last resort to continue all or part of the ECC Program so that wasteful energy consumption is reduced as directed by PRC 25402, even in the event there are no Providers.

**Section:** 10-103.3(d)15

**Specific Purpose:** The purpose of this addition is to establish the ECC-Provider progressive discipline process for the CEC to use. Violations that trigger the disciplinary process including failure to comply with quality assurance requirements, failure to investigate or discipline ECC-Raters and ECC-Rater, failure to allow the Commission full access to the ECC-Provider data registry, refusal to comply with Commission data requests, failure to cooperate in a Commission complaint investigation, and failure to otherwise comply with any applicable law or regulation. In the event of a severe violation, the Executive Director may proceed immediately to issue a notice of suspension for the first severe violation and to issue a notice of decertification for a second severe violation.

**Necessity:** This addition is necessary to provide a clear discipline process that does not only rely on rescinding the CEC ECC-Provider approval. For varying levels of misconduct, varying levels of discipline must be available. Otherwise, small infractions may go undisciplined due to a mismatch in the violation and remedy. Progressive ECC-Provider discipline allows the ECC Program to identify and incentivize improved rating accuracy so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)15A

**Specific Purpose:** The purpose of this addition is to provide a reasonable notice of violation to the ECC-Provider, allowing it reasonable time to respond. Upon identification of one or more violations of these regulations by an ECC-Provider, the Executive Director shall issue a notice of violation to the ECC-Provider's designated contact and publicly post the notice. The Executive Director shall require the ECC-Provider to take corrective action related to the violations within a specified timeframe. The notice of violation shall be in writing and include a description of the legal requirements and violations, any corrective action the ECC-Provider must take, and the timeframe for complying with all the notice of violation requirements

**Necessity:** This addition is necessary to give the ECC-Provider reasonable means to respond and explain the issue of the violation. Progressive ECC-Provider discipline allows the ECC Program to identify and incentivize improved rating accuracy so that building energy efficiency standard compliance is achieved, and wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)15B

**Specific Purpose:** The purpose of this addition is to progress to a higher level of discipline when an ECC-Provider is noncooperative. If an ECC-Provider fails to complete all corrective action prescribed by the Executive Director within the specified timeframe or receives a second notice of violation within a three-month period, the Executive Director shall issue a notice of probation to the ECC-Provider's designated contact.

**Necessity:** This addition is necessary to prevent the ECC-Provider from ignoring the violation and remedies. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15C

**Specific Purpose:** The purpose of this addition is to progress to a higher level of discipline when an ECC-Provider is noncooperative. If an ECC-Provider fails to complete all corrective action or receives a new notice of violation while on probation,

the Executive Director shall issue a notice of suspension to the ECC-Provider's designated contact.

**Necessity:** This addition is necessary to prevent the ECC-Provider from continuing business as usual while ignoring the violation and remedy. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15Ci

**Specific Purpose:** The purpose of this addition is to specify the timeline that the ECC-Provider has to respond to the suspension.

**Necessity:** This addition is necessary to allow a reasonable amount of time for the ECC-Provider to explain its actions regarding the violation and remedy. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15Cii

**Specific Purpose:** The purpose of this addition is to establish the length and condition of the ECC-Provider suspension.

**Necessity:** This addition is necessary to allow the CEC to customize the suspension based in part on the original violation. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15Ciii

**Specific Purpose:** The purpose of this addition is to allow the CEC to modify the terms of the ECC-Provider suspension, while preserving the ECC-Provider's ability to appeal the decision, if they fail to do so, the terms of the modification will apply.

**Necessity:** This addition is necessary to tailor the suspension terms based on any new information that the CEC discovers is presented by the ECC-Provider. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15Civ

**Specific Purpose:** The purpose of this addition is to make public ECC-Provider suspensions after 180 days.

**Necessity:** This addition is necessary to keep the public informed of an ECC-Provider suspension and its impacts on the construction industry. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15D

**Specific Purpose:** The purpose of this addition is to allow the CEC to rescind its approval of an ECC-Provider.

**Necessity:** This addition is necessary as the final step in the progressive discipline process to prevent an ECC-Provider from negatively impacting the reputation of the ECC program. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15Di

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider time to respond to the CEC rescinding its approval.

**Necessity:** This addition is necessary to give the ECC-Provider a final means of remedying its violations. Progressive ECC-Provider discipline allows the ECC Program to identify and take steps to correct regulation violations. Correcting these violations increases accountability, increases the reputation of the ECC Program, and increases the accuracy of ECC-Ratings. These steps decrease wasteful energy consumption as directed by PRC 25402.

**Section:** 10-103.3(d)15E

**Specific Purpose:** The purpose of this addition is to prevent an ECC-Provider from reapplying to the CEC after its approval has been rescinded. It may only reapply after completing the remediation process.

**Necessity:** This addition is necessary to prevent an ECC-Provider from gaming the progressive discipline process and wasting the CEC resources. A clear and robust remediation process is necessary to maintain the reputation of the ECC Program. A reputable program encourages widespread program adoption and accurately

determines building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)15Ei

**Specific Purpose:** The purpose of this addition is to require a decertified ECC-Provider to submit an application for remediation to the CEC for the CEC to consider allowing the decertified ECC-Provider to reapply.

**Necessity:** This addition is necessary to give a reasonable pathway to remediation of the ECC-Provider. A clear and robust remediation process is necessary to maintain the reputation of the ECC Program. A reputable program encourages widespread program adoption and accurately determines building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(d)15Eii

**Specific Purpose:** The purpose of this addition is to allow the CEC to declare the decertified ECC-Provider as remediated and allow it to reapply.

**Necessity:** This addition is necessary to ensure that the remediated ECC-Provider can address its violations prior to reapplying to the CEC. A clear and robust remediation process is necessary to maintain the reputation of the ECC Program. A reputable program encourages widespread program adoption and accurately determines building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to describe the basic certification process for ECC-Raters and their responsibilities.

**Necessity:** This addition is necessary to ensure that the ECC-Rater certification process is consistent regardless of the ECC-Provider. Clearly delineated certification processes and responsibilities are necessary to ensure ECC-Raters understand what is required to participate in the ECC Program. The procedures encourage a widespread program adoption which accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)1

**Specific Purpose:** The purpose of this addition is to describe the basic certification process for ECC-Raters.

**Necessity:** This addition is necessary to ensure that the ECC-Rater certification process is consistent regardless of the ECC-Provider. Clearly delineated certification processes are necessary to ensure ECC-Raters understand what is required to participate in the ECC Program. The procedures encourage a widespread program

adoption which accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)1A

**Specific Purpose:** The purpose of this addition is to require the ECC-Rater to apply to the ECC-Provider for certification.

**Necessity:** This addition is necessary to enforce the training and testing requirements for certification. Clearly delineated certification processes are necessary to ensure ECC-Raters understand what is required to participate in the ECC Program. The procedures encourage a widespread program adoption which accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the training for the ECC-Rater to be completed.

**Necessity:** This addition is necessary to ensure that all required training is completed. Minimum qualifications are necessary to ensure ECC-Raters understand what is required to participate in the ECC Program. The training requirements ensure ECC-Raters accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)1C

**Specific Purpose:** The purpose of this addition is to require an agreement signed by the ECC-Rater that includes the ECC-Rater statement of compliance with these requirements.

**Necessity:** This addition is necessary to ensure that the ECC-Rater can be held accountable for falsifying compliance documents. ECC-Rater Agreements ensure progressive discipline can be carried out. Progressive discipline assists in ensuring all requirements are carried out, which helps identify and incentivize improved rating accuracy so that building efficiency standard compliance is achieved, and the wasteful consumption of energy is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)1D

**Specific Purpose:** The purpose of this addition is to prevent an ECC-Rater with an existing disciplinary action against them from moving to another ECC-Provider and receiving a certification from the alternate ECC-Provider.

**Necessity:** This addition is necessary to prevent ECC-Rater with outstanding disciplinary actions from transferring to another ECC-Provider, thereby avoiding disciplinary actions. This prevents an ECC-Rater from undermining the integrity of the

ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)1Di

**Specific Purpose:** The purpose of this addition is to require the ECC-Provider to verify that the ECC-Rater is in good standing regarding their existing certification status.

**Necessity:** This addition is necessary to encourage the ECC-Provider to make efforts to check the background of prospective ECC-Raters. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)1Dii

**Specific Purpose:** The purpose of this addition is to allow ECC-Providers to submit a complaint to the CEC if they suspect an ECC-Rater has an outstanding disciplinary action and yet has received new certification from a new ECC-Provider.

**Necessity:** This addition is necessary to allow the CEC to enforce this requirement. The ECC-Provider will have limited leverage enforcing disciplinary action if the ECC-Rater is able to move to a new ECC-Provider. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to specify ECC-Rater conduct.

**Necessity:** This addition is necessary to require a level of professional conduct of the ECC-Raters because they deal directly with the public. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require ECC-Raters to perform the necessary field verification and diagnostic testing as required by the Energy Code.

**Necessity:** This addition is necessary to ensure that the ECC-Rater understands their role and all the standards they must comply with when carrying out a FV&DT. This

prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict the ECC-Rater from falsifying the field verification and diagnostic tests they perform.

**Necessity:** This addition is necessary to ensure that the ECC-Rater accurately reports the results of their FV&DT. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict ECC-Raters from accepting bribes.

**Necessity:** This addition is necessary to help ensure the reputation of the ECC program. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict the ECC-Rater's relationships in compliance with the conflicts of interest regulations.

**Necessity:** This addition is necessary to help ensure the reputation of the ECC program. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Rater to use assistance if they are directly overseen.

**Necessity:** This addition is necessary to limit the use of non-certified individuals performing field verifications and diagnostic tests. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy

efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict the ECC-Rater from falsifying the field verification and diagnostic tests they perform.

**Necessity:** This addition is necessary to ensure that the ECC-Rater accurately reports the results of their FV&DT. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow ECC-Raters to be self-employed.

**Necessity:** This addition is necessary to promote competition in the marketplace. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)3

**Specific Purpose:** The purpose of this addition is to link compliance with the ECC-Rater required conduct to the progressive discipline regulations.

**Necessity:** This addition is necessary to clearly identify these requirements as enforceable by the ECC-Provider. This prevents an ECC-Rater from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)4

**Specific Purpose:** The purpose of this addition is to provide an appeal process for the ECC-Rater.

**Necessity:** This addition is necessary to ensure that ECC-Raters are not subjected to unfair targeting by ECC-Providers. This addition allows an ECC-Rater to show they acted within the regulations of the ECC Program and may continue determining building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)4A

**Specific Purpose:** The purpose of this addition is to reinforce the appeal process set in the progressive disciplinary regulations.

**Necessity:** This addition is necessary to ensure that ECC-Raters are not subjected to unfair targeting by ECC-Providers. This addition allows an ECC-Rater to show they acted within the regulations of the ECC Program and may continue determining building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(e)4B

**Specific Purpose:** The purpose of this addition is to reinforce the appeal process set in the progressive disciplinary regulations.

**Necessity:** This addition is necessary to ensure that ECC-Raters are not subjected to unfair targeting by ECC-Providers. This addition allows an ECC-Rater to show they acted within the regulations of the ECC Program and may continue determining building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to describe the basic certification process for ECC-Rater Companies.

**Necessity:** This addition is necessary to ensure that the ECC-Rater Company certification process is consistent regardless of the ECC-Provider. Clearly delineated certification processes and responsibilities are necessary to ensure ECC-Rater Companies understand what is required to participate in the ECC Program. The procedures encourage a widespread program adoption which accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Rater to apply to the ECC-Provider for certification.

**Necessity:** This addition is necessary to enforce the training and testing requirements for certification. Clearly delineated certification processes are necessary to ensure ECC-Rater Companies understand what is required to participate in the ECC Program. The procedures encourage a widespread program adoption which accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Rater Company to apply to the ECC-Provider for certification.

**Necessity:** This addition is necessary to enforce the training and testing requirements for certification. Clearly delineated certification processes are necessary to ensure ECC-Rater Companies understand what is required to participate in the ECC Program. The procedures encourage a widespread program adoption which accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that one of the ECC-Rater Company principals is a certified ECC-Rater.

**Necessity:** This addition is necessary to ensure the ECC-Rater Company leadership is competent and has direct understanding of the ECC-Rater responsibilities. Minimum qualifications are necessary to ensure ECC-Rater Companies understand what is required to participate in the ECC Program. The training requirements ensure ECC-Raters accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the training for ECC-Rater Company to be completed.

**Necessity:** This addition is necessary to ensure that all required training is complete. The ECC-Rater Company is a new addition to the ECC Program and as such, each ECC-Rater Company must be trained in how to demonstrate compliance with its new responsibilities. Proper training is necessary to ensure ECC-Rater Companies understand what is required to participate in the ECC Program. The training requirements ensure ECC-Rater Companies accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Rater Company to sign an agreement with the ECC-Provider agreeing that the ECC-Rater Company will comply with all applicable laws and regulations.

**Necessity:** This addition is necessary to ensure that the ECC-Rater Company can be held accountable for falsifying compliance documents. ECC-Rater Company Agreements ensure progressive discipline can be carried out. Progressive discipline

assists in ensuring all requirements are carried out, which helps identify and incentivize improved rating accuracy so that building efficiency standard compliance is achieved, and the wasteful consumption of energy is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to specify ECC-Rater Company conduct.

**Necessity:** This addition is necessary to require a level of professional conduct of the ECC-Rater Companies because they deal directly with the public. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow ECC-Providers, the CEC, and the public to verify which ECC-Rater's work for which ECC-Rater Companies.

**Necessity:** This addition is necessary to effectively enforce the ECC-Rater conduct and activity requirements. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to limit ECC-Rater Company access to the certificates of verification, while allowing viewing access.

**Necessity:** This addition is necessary to prevent ECC-Rater Companies from altering the verification without the ECC-Rater's knowledge. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to forbid the ECC-Rater Company from altering the certificates of verification.

**Necessity:** This addition is necessary because ECC-Rater Companies have used ECC-Rater passwords to access the ECC-Provider data registry without the ECC-Rater's consent. This prevents an ECC-Rater Company from undermining the integrity of the

ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Rater Company to complete the certificate of compliance and installation for the project.

**Necessity:** This addition is necessary to prevent the ECC-Rater from compiling the certificate of compliance and verification, which is a violation of the conflict of interest. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Rater Company to complete the certificate of compliance and installation for the project.

**Necessity:** This addition is necessary to prevent the ECC-Rater from complying the certificate of compliance and verification, which is a violation of the conflict of interest. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to establish the circumstances and requirements for an ECC-Rater Company to voluntarily provide services other than field verification and diagnostic services to a builder that they otherwise would be required to be independent from.

**Necessity:** This addition is necessary to allow ECC-Rater Companies to engage in these practices while maintaining the independent, third-party nature of ECC-Raters from the builder. The ECC-Rater must be independent from the builder to help ensure that the field verification and diagnostic tests results are not coerced. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Rater Company to submit a declaration to establish a separation of services between field verification and

diagnostic testing services, and all other construction related services that the ECC-Rater Company may wish to provide.

**Necessity:** This addition is necessary to help ensure that the ECC-Rater Company does not circumvent the conflict-of-interest requirements (Section 10-103.3(b)1) or otherwise compromise the integrity of the ECC Program. This is critical to help ensure that the ECC-Rater does not experience undue pressure from the builder or designer within their own ECC-Rater Company. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to allow the ECC-Rater Company to show proof as to the separation of influence of the ECC-Rater and person(s) providing non-field verification and diagnostic testing services.

**Necessity:** This addition is necessary to help ensure that the ECC-Rater can provide an accurate field verification and diagnostic test without concern of retaliation from the person(s) providing non-field verification and diagnostic testing services. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to help ensure that the person providing construction services is qualified under Division 3 of the Business and Professions Code to perform those services.

**Necessity:** This addition is necessary to help ensure that the designs and specifications for construction are competent and in compliance with the Energy Code. Persons providing design, installation, and other construction services are regulated by the Business and Professions Code. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to specifically show proof that the person acting as the Responsible Person for the Certificates of Compliance and

Installation does not have any influence on the ECC-Rater performing the field verifications or diagnostic tests.

**Necessity:** This addition is necessary to help ensure that the ECC-Rater has specific protections from the influence of the person acting as the Responsible Person for the Certificates of Compliance and Installation. Such influence within an ECC-Rater Company can undermine the ECC program integrity. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure that the ECC-Rater Company files the Declaration of ECC-Rater Company Separation of Services with the ECC-Provider data registry being used for the project.

**Necessity:** This addition is necessary to help ensure that the correct ECC-Provider is made aware of the services being offered by the ECC-Rater Company. There are several independent ECC-Providers that do not communicate the filing of compliance documents with each other. This addition will help to clarify which ECC-Provider is being used for each project. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Rater Company to use the ECC-Provider data registry user interface or approved external digital data service.

**Necessity:** This addition is necessary because many ECC-Provider Companies have their own internal data gathering systems that are not permitted to upload to the data registry. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require annual reporting to the ECC-Provider.

**Necessity:** This addition is necessary to ensure that the ECC-Rater Companies perform this reporting and not the ECC-Provider. This ensures ECC-Rater Companies do their portion of annual reporting requirements to encourage transparency within the

ECC Program to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require specific information in the annual report to the ECC-Provider.

**Necessity:** This addition is necessary to allow the ECC-Provider to report this information to the CEC in aggregate form. This ensures ECC-Rater Companies do their portion of annual reporting requirements to encourage transparency within the ECC Program to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require specific a list of all ECC-Raters working for the ECC-Rater Company in the annual report to the ECC-Provider.

**Necessity:** This addition is necessary to allow the ECC-Provider to report this information to the CEC in aggregate form. This ensures ECC-Rater Companies do their portion of annual reporting requirements to encourage transparency within the ECC Program to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the total number of field verifications and diagnostic tests performed by ECC-Raters working for the ECC-Rater Company during the prior calendar year, organized by building code jurisdiction. in the annual report to the ECC-Provider.

**Necessity:** This addition is necessary to allow the ECC-Provider to report this information to the CEC in aggregate form. This ensures ECC-Rater Companies do their portion of annual reporting requirements to encourage transparency within the ECC Program to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the total and average cost of services charged for each type of field verification and diagnostic test performed by ECC-Raters working for the ECC-Rater Company during the prior calendar year in the annual report to the ECC-Provider.

**Necessity:** This addition is necessary to allow the ECC-Provider to report this information to the CEC in aggregate form. This ensures ECC-Rater Companies do their portion of annual reporting requirements to encourage transparency within the ECC

Program to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to make the ECC-Rater Company responsible for the actions of the ECC-Raters that they employ.

**Necessity:** This addition is necessary to motivate the ECC-Rater Companies to adopt internal policies in support of these regulations. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require that the ECC-Rater Companies support the progressive discipline regulations for ECC-Raters.

**Necessity:** This addition is necessary to promote more robust compliance with these regulations. Robust compliance with these regulations encourages accurate building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require an ECC-Rater Company to support the ECC Rater progressive discipline by ensuring the ECC-Rater complies with all actions prescribed in the notice of violation.

**Necessity:** This addition is necessary to promote better compliance with these requirements. Progressive discipline allows the ECC Program to identify and incentivize improved rating accuracy so that building energy efficiency standard compliance is achieved, and the wasteful consumption of energy is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require an ECC-Rater Company to support the ECC Rater progressive discipline by ensuring the ECC-Rater complies with all actions prescribed in the notice of probation.

**Necessity:** This addition is necessary to promote better compliance with these requirements. Progressive discipline allows the ECC Program to identify and incentivize improved rating accuracy so that building energy efficiency standard compliance is achieved, and the wasteful consumption of energy is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require an ECC-Rater Company to support the ECC Rater progressive discipline by ensuring the ECC-Rater complies with all actions prescribed in the notice of suspension.

**Necessity:** This addition is necessary to promote better compliance with these requirements. Progressive discipline allows the ECC Program to identify and incentivize improved rating accuracy so that building energy efficiency standard compliance is achieved, and the wasteful consumption of energy is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to ensure the ECC-Rater Company will guarantee the decertified ECC-Rater does not perform any FV&DT services

**Necessity:** This addition is necessary to promote better compliance with these requirements. A decertified ECC-Rater has shown they have not adequately complied with these regulations are unfit to accurately determine building energy efficiency, therefore they are not contributing to a reduction of wasteful energy, and should be removed from the ECC Program as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict ECC-Rater Companies from falsifying verifications.

**Necessity:** This addition is necessary to oversee the ECC-Rater Companies. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to restrict ECC-Rater Companies from accepting bribes.

**Necessity:** This addition is necessary for the integrity of the ECC program. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to require the ECC-Rater Companies to comply with the conflict-of-interest regulations.

**Necessity:** This addition is necessary to ensure that the ECC-Rater Companies do not cause a conflict of interest for the ECC-Raters that they employ. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(f)3

**Specific Purpose:** The purpose of this addition is to link compliance with the ECC-Rater Company required conduct to the progressive discipline regulations.

**Necessity:** This addition is necessary to clearly identify these requirements as enforceable by the ECC-Provider. This prevents an ECC-Rater Company from undermining the integrity of the ECC Program. A reputable ECC Program is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(f)4

**Specific Purpose:** The purpose of this addition is to provide an appeal process for the ECC-Rater Company.

**Necessity:** This addition is necessary to ensure that ECC-Rater Companies are not subjected to unfair targeting by ECC-Providers. The addition allows an ECC-Rater Company to show they acted within the regulations of the ECC Program and may continue participating in the ECC Program so that wasteful energy consumption is reduced as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to prevent suspended or decertified ECC-Raters, ECC-Rater Companies, or ECC-Providers from continuing to operate under these regulations.

**Necessity:** This addition is necessary to describe the exact restrictions for ECC-Raters, ECC-Rater Companies, and ECC-Providers based on their certification status. Preventing suspended or decertified ECC participants from practice and re-entry increases the reputation of the ECC Program. A strong reputation is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(g)1

**Specific Purpose:** The purpose of this addition is to describe the limitations of ECC-Raters under suspension.

**Necessity:** This addition is necessary to restrict the activities of the ECC-Rater while under suspension. Preventing suspended or decertified ECC participants from practice and re-entry increases the reputation of the ECC Program. A strong reputation is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(g)1A

**Specific Purpose:** The purpose of this addition is to restrict the ECC-Rater from using the ECC-Provider data registry while under suspension.

**Necessity:** This addition is necessary to prevent the ECC-Rater from altering entries in the data registry while under investigation. Preventing suspended or decertified ECC participants from practice and re-entry increases the reputation of the ECC Program. A strong reputation is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

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

**Specific Purpose:** The purpose of this addition is to invalidate any information entered into the data registry by a suspended ECC-Rater.

**Necessity:** This addition is necessary to allow the ECC-Provider to flag data entered into the data registry by a suspended ECC-Rater as conflicted data. Preventing suspended or decertified ECC participants from practice and re-entry increases the reputation of the ECC Program. A strong reputation is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(g)2

**Specific Purpose:** The purpose of this addition is to restrict the actions of the ECC-Rater Company while under suspension.

**Necessity:** This addition is necessary to prevent the ECC-Rater Company from altering the data registry while under investigation. Preventing suspended or decertified ECC participants from practice and re-entry increases the reputation of the ECC Program. A strong reputation is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(g)3

**Specific Purpose:** The purpose of this addition is to restrict the actions of the ECC-Provider when interacting with ECC-Raters or ECC-Rater Companies while they are under suspension.

**Necessity:** This addition is necessary to prevent the ECC-Provider from allowing the data registry to be altered by entities under investigation. Preventing suspended or decertified ECC participants from practice and re-entry increases the reputation of the ECC Program. A strong reputation is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(g)3A

**Specific Purpose:** The purpose of this addition is to restrict an ECC-Provider that is under suspension from accepting entries into its data registry.

**Necessity:** This addition is necessary to ensure that suspended entities do not alter the data registry. Preventing suspended or decertified ECC participants from practice and re-entry increases the reputation of the ECC Program. A strong reputation is necessary to encourage widespread program adoption and accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(g)3B

**Specific Purpose:** The purpose of this addition is to make it clear that the ECC-Provider can register documents from a suspended ECC-Rater that were submitted prior to suspension.

**Necessity:** This addition is necessary to clarify that an ECC-Provider does not need to purge its data registry of all compliance documents submitted by a suspended ECC-Rater. A well understood ECC Program is necessary to encourage widespread program adoption and accurately determine building efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(g)4

**Specific Purpose:** The purpose of this addition is to allow the CEC to reinstate a suspended entity for good cause.

**Necessity:** This addition is necessary to allow for the possibility that it would be in the best interest of the ECC program to reinstate a suspended ECC-Rater or ECC-Rater Company. A dynamic ECC Program that allows a previously suspended or decertified ECC participant allows the Executive Director or Commission to weigh the benefits to the larger ECC Program vs the risks. The Commission or Director may find that the

benefits to the program reduce the wasteful consumption of energy as directed by PRC 25402, outweighing potential harms in keeping the ECC participant out of the ECC Program.

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

**Specific Purpose:** The purpose of this addition is to provide a final appeal for progressive discipline actions taken against ECC-Raters and ECC-Rater Companies.

**Necessity:** This addition is necessary to allow the CEC to consider all actions of the ECC-Provider when it decertifies an ECC-Rater or ECC-Rater Company. This addition allows a decertified ECC participant to argue they acted within the regulations of the ECC Program and may continue to participate in the ECC program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(h)1

**Specific Purpose:** The purpose of this addition is a general outline of the appeal submitted to the CEC.

**Necessity:** This addition is necessary to ensure that a minimum record is created for the CEC to consider. This addition allows a decertified ECC participant to argue they acted within the regulations of the ECC Program and may continue to participate in the ECC program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(h)2

**Specific Purpose:** The purpose of this addition is to allow the ECC-Provider to submit a response to the appeal.

**Necessity:** This addition is necessary to allow the ECC-Provider the opportunity to answer any accusations in the appeal. This addition allows a decertified ECC participant to argue they acted within the regulations of the ECC Program and may continue to participate in the ECC program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(h)3

**Specific Purpose:** The purpose of this addition is to describe the appeal process that the CEC will follow.

**Necessity:** This addition is necessary to clarify that the CEC will follow its standard appeal process in Title 20. This addition allows a decertified ECC participant to argue they acted within the regulations of the ECC Program and may continue to participate in the ECC program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** 10-103.3(h)3A

**Specific Purpose:** The purpose of this addition is to allow the CEC to use its standard appeal process.

**Necessity:** This addition is necessary to reference the CEC standard appeal process directly.

**Section:** 10-103.3(h)3B

**Specific Purpose:** The purpose of this addition is to direct the CEC to review the decision process used by the ECC-Provider to decertify the ECC-Rater or ECC-Rater Company.

**Necessity:** This addition is necessary to limit the CEC review to only the ECC-Provider process and not the validity of the evidence collected by the ECC-Provider.

**Section:** 10-104(b)

**Purpose:** The reason for including the term 'and' after each semicolon is to ensure a clear understanding that all the requirements in Section 10-104(b) shall be met.

**Necessity:** These changes are essential to make sure that the provisions in the subsection are clear and unambiguous, enabling non-technical readers to easily locate and comprehend the technical requirements.

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

**Specific Purpose:** Include language under the Alternative Calculation Method, to specify that the compliance manager is the compliance software developed by the Energy Commission to demonstrate building compliance with the Energy Code. The compliance manager determines compliance by comparing the standard design energy budget to the proposed design as described in the following subsections.

**Necessity:** Currently, the Alternative Calculation Method Approval Manual is adopted as a separate document during the rulemaking process. The Compliance Manager references the software that is provided by the CEC. Descriptions of the Compliance Manager and Alternative Calculation Method software standard design have been brought over from the ACM Approval Manual. By incorporating the application process and requirements specified in the ACM Approval Manual, this additional document can be removed. The requirements are relocated into Section 10-116 and language will be revised to point to this new section in place of the ACM Approval Manual.

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

**Specific Purpose:** Include language under the Alternative Calculation Method, to specify the standard design for building models is calculated in the compliance manager software and Alternative Calculation Method software.

**Necessity:** Currently, the Alternative Calculation Method Approval Manual is adopted as a separate document during the rulemaking process. The Compliance Manager references the software that is provided by the CEC. Descriptions of the Compliance Manager and Alternative Calculation Method software standard design have been brought over from the ACM Approval Manual. By incorporating the application process and requirements specified in the ACM Approval Manual, this additional document can be removed. The requirements are relocated into Section 10-116 and language will be revised to point to this new section in place of the ACM Approval Manual.

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

**Specific Purpose:** Include language under the Alternative Calculation Method, to explain Long-term System Cost and Source Energy for building models calculated using the compliance manager software and Alternative Calculation Method software.

**Necessity:** Currently, the Alternative Calculation Method Approval Manual is adopted as a separate document during the rulemaking process. The Compliance Manager references the software that is provided by the CEC. Descriptions of the Compliance Manager and Alternative Calculation Method software energy budget, Long-term System Cost, and Source Energy have been brought over from the ACM Approval Manual. By incorporating the application process and requirements specified in the ACM Approval Manual, this additional document can be removed. The requirements are relocated into Section 10-116 and language will be revised to point to this new section in place of the ACM Approval Manual.

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

**Specific Purpose:** Include language under Alternative Calculation Method, to specify the climate zone use for building models in the compliance manager software and Alternative Calculation Method software.

**Necessity:** Currently, the Alternative Calculation Method Approval Manual is adopted as a separate document during the rulemaking process. The Compliance Manager references the software that is provided by the CEC. Descriptions of the Compliance Manager and Alternative Calculation Method software climate zone use have been brought over from the ACM Approval Manual. By incorporating the application process and requirements specified in the ACM Approval Manual, this additional document can be removed. The requirements are relocated into Section 10-116 and language will be revised to point to this new section in place of the ACM Approval Manual.

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

**Specific Purpose:** Include language under the Alternative Calculation Method, to specify the development of the Alternative Calculation Method Reference Manual.

**Necessity:** Currently, the Alternative Calculation Method Approval Manual is adopted as a separate document during the rulemaking process. The Compliance Manager references the software that is provided by the CEC. The Alternative Calculation Method Reference Manual provides additional clarification of the standard design, energy budget, Long-term System Cost, Source Energy, and climate zone usage in software. By incorporating the application process and requirements specified in the ACM Approval Manual, this additional document can be removed. The requirements are relocated into Section 10-116 and language will be revised to point to this new section in place of the ACM Approval Manual.

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

**Specific Purpose:** Include language under the Alternative Calculation Method, to specify the compliance documentation in the compliance manager software and Alternative Calculation Method software.

**Necessity:** Currently, the Alternative Calculation Method Approval Manual is adopted as a separate document during the rulemaking process. The Compliance Manager references the software that is provided by the CEC. Description of the Compliance Manager and Alternative Calculation Method software compliance documentation requirements have been brought over from the ACM Approval Manual. By incorporating the application process and requirements specified in the ACM Approval Manual, this additional document can be removed. The requirements are relocated into Section 10-116 and language will be revised to point to this new section in place of the ACM Approval Manual.

**Section:** Section 10-109(c)2

**Specific Purpose:** Added term compliance manager to this section to indicate that the compliance manager is the public domain computer program.

**Necessity:** The term compliance manager was used in the 2022 Alternative Calculation Method Approval Manual to identify the public domain computer program that the CEC used to meet Public Resources Code Section 25402.1. The Alternative Calculation Method Approval Manual was incorporated into Sections 10-109 and 10-116 of the Energy Code. The term compliance manager was added to Section 10-109(c)2 to clarify that the public domain computer program identified here is the same compliance manager discussed in Section 10-116

**Section:** Section 10-109(c)3

**Specific Purpose:** Revise language to reference Section 10-116, 10-109(c)1A, 10-109(c)1B, 10-109(c)1C, 10-109(c)1D, and 10-109(c)1E for requirements for applications for approval of compliance software.

**Necessity:** The Alternative Calculation Method Approval Manual was dissolved, with regulatory language moved into Section 10-116, 10-109(c)1A, 10-109(c)1B, 10-109(c)1C, 10-109(c)1D, and 10-109(c)1E. The revised section in 10-116 provides

information on applications for all Alternative Calculation Method software, and the revised sections in 10-109 include software capabilities applicable to both the compliance manager software and all other compliance software. Additionally, supporting language from the Alternative Calculation Method Approval Manual will be moved into the ACM Reference Manual.

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

**Specific Purpose:** The purpose of this change is to clarify actions the CEC may take under its own motion and limit the obligations of prior approved applicants.

**Necessity:** This change is necessary to clarify applicant requirements and duty, and to reduce administrative burden.

**Section:** 10-110

**Specific Purpose:**

The purpose of this change is to add section 10-103.3 to the heading of Title 24, Part 1, Section 10-110.

**Necessity:**

This change is necessary to help clarify the application review and to give constructive structure to the review and approval process.

**Section:** 10-114

**Specific Purpose:**

The purpose of this change is to update the US Census guideline from 2010 to 2020.

**Necessity:**

This change is necessary to align with the latest US Census designations.

**Section:** Section 10-115

**Specific Purpose:** The purpose of this change is to specify that the code only is regulating Battery Energy Storage Systems and not any other storage systems.

**Necessity:** These changes are essential to make sure that the provisions in the subsection are clear and unambiguous and only apply to Battery Energy Storage Systems.

**Section:** Section 10-115(a)6

**Specific Purpose:** The purpose of this addition is to clarify and make more specific the meaning of distribution system within the community shared solar electric generation system. The distribution system shall have an electrical voltage less than 100kV

**Necessity:** These changes are essential to make sure that the provisions in the subsection are clear and unambiguous. It aligns the scope of distribution system to be consistent with the 100 million kV capacity minimum that the North American Electric Reliability Corporation (NERC) establishes as the minimum threshold for transmission lines; distribution lines operate at lower voltages.”

**Section:** Section 10-116

**Specific Purpose:** This new section includes the application requirements for third party Alternative Calculation Method compliance software.

**Necessity:** These requirements were originally included in the ACM Approval Manual which was adopted as part of the rulemaking process. To reduce the number of rulemaking documents, application requirements and user manual requirements included in the ACM Approval Manual were relocated to Section 10-116. Additional language included in the ACM Approval Manual which provided additional supporting information will be relocated into the ACM Reference Manual. The ACM Reference Manual already provides language to support the ACM Approval Manual. Appendix A and Appendix B of the Approval Manual will be moved into the ACM Reference Manual.

## TITLE 24, PART 6 PROPOSED AMENDMENTS

**Section:** Section 100.0(a)1 – Scope

**Specific Purpose:** This change will add occupancy group L to the list of building occupancy groups covered by the Energy Code.

**Necessity:** Currently occupancy group L is not covered under the Energy Code. Laboratories were previously covered under the Energy Code prior to revisions to occupancy groups in the building code which separated occupancy group L laboratories from other occupancy groups. This revision will bring these laboratories back under the Energy Code where considerations have already been made for laboratory spaces. Applying the Energy Code to occupancy group L will reduce excessive energy use as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** Exception 2 to Section 100.0(a)

**Purpose:** The purpose of this change is to modify terminology and eliminate the use of the term "exempt" for clarity without changing the intent of the Energy Code. When particular requirements in the Energy Code are not applicable to particular construction situations or equipment for specific reasons, the Energy Code does provide exceptions that indicate compliance is not required in that instance.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity, provide consistency with other exceptions in the Energy Code.

**Section:** 100.0(e)2C Unconditioned Nonresidential Buildings and Process Space

**Purpose:** The purpose of this change is to remove unnecessary and duplicative language for the sections that are applicable to both unconditioned nonresidential buildings and process spaces.

**Necessity:** It is necessary to make this change because Section 140.1 is not applicable to these spaces, and Section 140.3(c) is already mentioned in the beginning of this subsection. 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:** 100.0(e)2F Covered processes

**Specific Purpose:** The purpose of this change is to clean up language to properly reference mandatory requirements for covered processes that are located in Section 110.2 and 120.3 of the Energy Code, as well as prescriptive requirements in 141.1. Section 110.2 is appropriately referenced in Section 100.0(e)2Fi but should also be referenced in Section 100.0(e)2Fii and removed the note to Section 100.0(e)2F as it is not enforceable. Section 120.3 is newly applicable to covered processes. Section 141.1 is applicable to additions and alterations to existing covered processes. Remove note regarding the applicability of mandatory requirements to prescriptive projects.

**Necessity:** This change is required to reduce confusion in which sections a user should refer to when identifying requirements for covered process measures. Additional, new requirements for covered processes included in Section 120.3 are referenced to notify

users that where these new requirements are located. Finally, the note that was removed provided redundant information and not enforceable.

**Section:** Table 100.0-A

**Specific Purpose:** The purpose of this change is to update covered processes to reference Section 120.3 for mandatory requirements and Sections 110.2 and 120.3 for additions and alterations. The purpose was to also update the nonresidential HVAC sections to include 120.10.

**Necessity:** Revisions to the code language included new pipe insulation requirements for covered process equipment located in Section 120.3. Additionally, requirements in Section 120.3 and 110.2 are now applicable to addition and alteration projects. The addition of 120.10 to this table was needed to improve clarity and consistency of the code.

**Section** 100.1(b) - Definitions

**Specific Purpose:** The specific purpose of the change is to correct minor grammatical and typographical errors throughout section 100.1.

**Necessity:** The changes are necessary to ensure the code can be read without any confusions. The changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 100.1(b) – AHRI 420 Definition

**Specific Purpose:** The purpose of this change is to add the definition for AHRI 420, including specifics regarding the version of the document, used for Energy Code requirements.

**Necessity:** The definition AHRI 420 is required to ensure that the appropriate versions of AHRI 420 are referenced and used when calculating specific minimum efficiency of refrigerated warehouse evaporator equipment.

**Section:** 100.1(b) – AHRI 540 definition

**Specific Purpose:** The purpose of this change is to add the definition of AHRI 540, including specifics regarding the version of the document, used for Energy Code Requirements.

**Necessity:** The definition of AHRI 540 is required to ensure that the appropriate versions of AHRI 540 are referenced and used when calculating compressor capacity to meet minimum heat pump water heater ventilation requirements.

**Section:** 100.1(b) – AHRI 1240 Definition

**Specific Purpose:** The purpose of this change is to add the definition of AHRI 1240, including specifics regarding the version of the document, used for Energy Code Requirements.

**Necessity:** The definition of AHRI 1240 is required to ensure that the appropriate versions of AHRI 1240 are referenced and used when calculating specific minimum efficiency of refrigerated warehouse evaporator equipment.

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

**Specific Purpose:** Add definition for air-to water heat pumps to clarify the type of equipment that is required in new Energy Code requirements.

**Necessity:** New heat pump requirements for offices and school buildings were added into the 2025 Energy Code. This definition provides clarity regarding the air-to-water heat pump equipment that are required to be installed as part of these new requirements.

**Section:** 100.1(b) – ANSI/AMCA 220 definition

**Purpose:** The specific purpose of adding a definition for *ANSI/AMCA 220* to the Definitions section is to provide clean and specific definition for this technical term, which is used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code. This includes the added definition for new industry standards documents that are incorporated by reference into later portions of the Energy Code.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) – ASHRAE Guideline 36 definition

**Specific Purpose:** The specific purpose of this addition is to include a definition for the ASHRAE Guideline 36 publication to state the title and topic and provide a precise understanding of the guideline's scope, objectives, and relevance in the context of building design with regards to energy efficiency. This inclusion will aid in promoting consistency, adherence, and effective utilization of the guideline's principles and strategies.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective HVAC controls. Providing a clear and concise definition of ASHRAE Guideline 36 within the California Energy Code aids in interpretation, compliance, and enforcement efforts. It offers guidance to designers, engineers, contractors, and building officials, ensuring that projects meet or exceed established energy efficiency criteria.

**Section:** 100.1(b) – ASHRAE Standard 62.2 definition

**Specific Purpose:** The specific purpose of this change is to update to the current version of ASHRAE 62.2 (2022 version) to be referenced by Title 24, Part 6.

**Necessity:** This change is necessary to align with industry standard practices, and model codes.

**Section:** 100.1(b) – Battery System, Stationary Storage and Battery Energy Storage System (BESS) definition

**Specific Purpose:** This definition is being merged with the Energy Storage System (ESS) and renamed to Battery Energy Storage System (BESS). All references to battery storage system and energy storage system (including references to ESS) throughout Parts 1 and 6, as well as the reference appendices, are also being updated to BESS to reflect this change.

**Necessity:** This change is necessary to align with the more up-to-date industry terminology for electro-chemical battery storage systems. Currently the only type of ESS recognized by the Standards is BESS, this change clarifies the intent of the Standard and ensures that the terms used within the regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations.

**Section:** 100.1(b) – Cathedral Ceiling definition

**Specific Purpose:** Add a definition of cathedral ceilings that ensures a consistent interpretation and accurate compliance with energy efficiency requirements of the code's provisions related to building construction.

**Necessity:** This change is necessary to clarify what assemblies qualify as cathedral assemblies. Incorporating a precise definition to provide a standardized reference point that aids architects, engineers, and builders in accurately identifying and implementing cathedral ceilings in construction projects.

**Section:** 100.1(b) – Demand Flexibility Measure definition

**Specific Purpose:** The specific purpose of the change is to update the terminology of Time Dependent Valuation to Long-term System Cost.

**Necessity:** These changes are necessary to ensure that the terms used within 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 new term ensures consistency between the Energy Code and the other Parts of the Building Standards Code.

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

**Specific Purpose:** Add definition for Domestic Hot Water System Appurtenance.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) – Dwelling Unit, Junior Accessory, or JADU definition

**Specific Purpose:** This specific purpose of this change is to add additional language to the existing definition to clarify that the JADU may be within a newly constructed or an existing single-family building.

**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:** 100.1(b) – Energy Budget definition

**Specific Purpose:** The specific purpose of the change is to update the terminology of Time Dependent Valuation to Long-term System Cost. The Energy Budget definition is updated to include all terms for which an energy budget is set, Long-term System Cost and Source Energy. Definition of each of these terms is also added to section 100.1(b). Time Dependent Valuation, which is no longer being used for setting an energy budget, is deleted.

**Necessity:** These changes are necessary to ensure that the terms used within 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 new term ensures consistency between the Energy Code and the other Parts of the Building Standards Code.

**Section:** 100.1(b) – Energy Design Rating (EDR) definitions

**Specific Purpose:** The specific purpose of these changes is to remove definitions relating to Energy Design Rating (EDR). The following EDR definitions have been removed:

- Energy Design Rating (EDR)
- Energy Design Rating, Energy Efficiency
- Energy Design Rating, Solar Electric Generation and Demand Flexibility

**Necessity:** These changes are necessary because Energy Design Rating is no longer being 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 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 100.1(b) – Energy Storage System (ESS) definition

**Specific Purpose:** This definition is being merged with the definition for Battery Energy Storage System (BESS) and subsequently removed. All Standards references to battery storage system and energy storage system are also being updated to BESS to reflect this change.

**Necessity:** This change is necessary to align with the more up-to-date industry terminology for electro-chemical battery storage systems. Currently the only type of ESS recognized by the Standard is BESS, this change clarifies the intent of the Standard and ensure that the terms used within the regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations.

**Section:** 100.1(b) – Healthcare Facility definition

**Specific Purpose:** Revise definition of healthcare facility to clarify that only health facilities, as defined in the California Health and Safety Code Division 2, Chapter 2, Section 1250, and clinics, as defined in the California Health and Safety Code Division 2, Chapter 1, Section 1204, located within a health facility fall under the healthcare facility category.

**Necessity:** This revision is necessary because the Department of Health Care Access and Information (HCAI) reviews clinics located in health facilities but does not review clinics not located in health facilities. This left clinics located outside of health facilities outside of regulations by HCAI or the Energy Code. Bringing clinics under the Energy Code and HCAI ensures that these facilities meet appropriate energy requirements and reduce excessive energy use as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) – Heat Pump Water Heater definition

**Specific Purpose:** The purpose of this change is to move the heat pump water heater definition under water heater definition.

**Necessity:** These changes are necessary to improve readability and provide easy access to all related water heater definitions.

**Section:** 100.1(b) – Kitchen definitions

**Specific Purpose:** The specific purpose of the newly added definitions to the Definitions section are to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code. This includes added definitions for new industry standards documents that are incorporated by reference into later portions of the Energy Code. The newly added definitions are:

KITCHEN, FULL-SERVICE COMMERCIAL  
KITCHEN, INSTITUTIONAL COMMERCIAL  
KITCHEN, QUICK-SERVICE COMMERCIAL

**Necessity:** These newly added definitions are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms relating to building design and construction.

**Section** 100.1(b) – Lighting – Multilevel Lighting Control definition

**Specific Purpose:** The specific purpose of the change is to clarify and to update the definition of multilevel lighting controls. The change is to delete the phrase “reduces power going to a lighting system in multiple steps” and to replace it with “enables the level of lighting to be adjusted up and down across multiple levels”.

**Necessity:** The proposed change to delete “reduces power going to a lighting system in multiple steps” is to clarify that current available multilevel lighting controls technology is

capable of adjusting lighting level of lighting upward and downward and beyond multiple steps - over in continuous range or continuous dimming. The proposed update of multilevel lighting controls is reasonably necessary to ensure and improves the general clarity and internal consistency of the Energy Code.

**Section:** 100.1(b) – Lighting – Programming Library definition

**Specific Purpose:** The specific purpose of this addition is to include a definition for the term “Programming Library.” The term is used in other proposed changes and are collections of prewritten code that users can use to optimize HVAC system operation.

**Necessity:** The inclusion of the term "Programming Library" is crucial, as it not only aligns with proposed modifications but also addresses the need for standardized language in the documentation of HVAC control systems.

**Section** 100.1(b) – Lighting – Temporary Lighting definition

**Specific Purpose:** The specific purpose of the change is to revise the definition of installation period of temporary lighting and to define that temporary lighting does not persist beyond the time constraints specified about temporary lighting installations in California Electrical Code Article 590.

**Necessity:** The proposed change of the definition of temporary lighting are reasonably necessary to ensure the Energy Code is in harmony with the California Electrical Code for the meaning of time constraint of temporary lighting. The changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

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

**Purpose:** The specific purpose of this change is to add a definition for the term Long-term System Cost, which replaces the term Time Dependent Valuation as the primary compliance metric for the Energy Code performance approach. The definition provides clear and specific definition for this technical term, which is used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code. This includes the added definition for new industry standards documents that are incorporated by reference into later portions of the Energy Code.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

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

**Specific Purpose:** The specific purpose of the change is to update the version to 8.0. and include the effective date of this version.

**Necessity:** These changes are necessary to align with the latest version of the NEEA Advanced Water Heater Specification.

**Section:** 100.1(b) – Net Free Area definition

**Specific Purpose:** The purpose of this change is to add definition for Net Free Area.

**Necessity:** These changes are necessary to support the new ventilation requirements for consumer integrated heat pump water heaters in 110.3(c)7. This definition clearly describes what area can count towards any “net free area” minimum requirement, which will ensure that where these requirements are triggered, the systems they serve perform as efficiently as expected. This is needed to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** Section 100.1(b) – Nonresidential Building definition

**Specific Purpose:** This change will add occupancy group L to the list of building occupancy groups covered under the nonresidential building definition.

**Necessity:** Currently occupancy group L is not covered under the Energy Code nonresidential buildings. Laboratories were previously covered under the Energy Code prior to revisions to occupancy groups in the building code which separated occupancy group L laboratories from other occupancy groups. This revision will bring these laboratories back under the Energy Code where considerations have already been made for laboratory spaces. Applying the Energy Code to occupancy group L will reduce excessive energy use as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) – Nonresidential Building Occupancy Types – Events & Exhibits definition

**Specific Purpose:** The purpose of this change is to add a definition to a newly covered space under our photovoltaic and energy storage system requirements of Section 140.10.

**Necessity:** This change is needed to ensure that spaces which have photovoltaic and energy storage system requirements are clearly identified and defined.

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

**Specific Purpose:** The purpose of this change is to add a definition to a newly covered space under our photovoltaic and energy storage system requirements of Section 140.10.

**Necessity:** This change is needed to ensure that spaces which have photovoltaic and energy storage system requirements are clearly identified and defined.

**Section:** 100.1(b) – Nonresidential Building Occupancy Types – Religious Worship Building definition

**Specific Purpose:** The purpose of this change is to add a definition to a newly covered space under our photovoltaic and energy storage system requirements of Section 140.10.

**Necessity:** This change is needed to ensure that spaces which have photovoltaic and energy storage system requirements are clearly identified and defined.

**Section:** 100.1(b) – Nonresidential Building Occupancy Types – Sports & Recreation Building definition

**Specific Purpose:** The purpose of this change is to add a definition to a newly covered space under our photovoltaic and energy storage system requirements of Section 140.10.

**Necessity:** This change is needed to ensure that spaces which have photovoltaic and energy storage system requirements are clearly identified and defined.

**Section:** Section 100.1(b) – Nonresidential Function Areas – Laboratory definition

**Specific Purpose:** Add definition for laboratory spaces.

**Necessity:** Occupancy group L includes laboratory spaces and spaces supporting laboratory spaces. A definition to specify laboratory spaces versus the occupancy group L in general was provided to clarify that only the lab spaces would have to meet laboratory requirements and be able to use appropriate exceptions.

**Section:** Section 100.1(b) – Nonresidential Function Areas – Laboratory Suite

**Specific Purpose:** Add definition for laboratory suite.

**Necessity:** The building code definition for Occupancy group L is based off the term laboratory suites. Laboratory suites includes laboratory spaces, and offices, storage rooms and other spaces supporting laboratory spaces. A definition to specify laboratory spaces versus the occupancy group L, laboratory suites, in general was provided to clarify that only the lab spaces would have to meet laboratory requirements and be able to use appropriate exceptions.

**Section:** 100.1(b) – Pools

**Specific Purpose:** The specific purpose of the change is to update the definition to align pool definition with national and International Codes.

**Necessity:** These changes are necessary based on industry feedback to ensure that the terms used within 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, these new terms ensure consistency between the Energy Code and the other Parts of the Building Standards Code.

**Section:** 100.1(b) - Pool Pump, Dedicated-Purpose definition

**Specific Purpose:** Add definition for Pool Pump, Dedicated-Purpose

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) - Pool, Public definition

**Specific Purpose:** Add definition for Pool, Public

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and

understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) - Portable Electric Spa definition

**Specific Purpose:** Add definition for Portable Electric Spa

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) – Pools, Residential definition

**Specific Purpose:** The specific purpose of the change is to update the definition to align pool definition with national and International Codes.

**Necessity:** These changes are based on industry feedback and are necessary to ensure that the terms used within 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, these new terms ensure consistency between the Energy Code and the other Parts of the Building Standards Code.

**Section:** 100.1(b) – Power Conditioning System (PCS)

**Specific Purpose:** The specific purpose of the change is to add a definition for Power Conditioning System (PCS).

**Necessity:** This change is necessary to support the updated definition Battery Energy Storage System (BESS), which includes the term “Power Conditioning System” as a component of a BESS. Defining this term as proposed helps ensure consistency between the Energy Code and industry accepted definitions.

**Section:** 100.1(b) – Process, Covered definition

**Specific purpose:** The purpose of this change is to cleanup referenced section that apply to covered processes, and to add language specifying that process heating and cooling piping are considered covered processes. References to sections in the Energy Code that apply to covered process projects was removed.

**Necessity:** New insulation requirements for process heating and cooling piping were added. Adjusting the definition of covered process to specifically call out process heating and cooling piping will ensure that users will know that this equipment also has requirements under the Energy Code. References to specific code language was removed as it is not actually a definition.

**Section:** 100.1(b) - Recovered Energy, On-Site definition

**Specific Purpose:** Add definition for Recovered Energy, On-Site

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) - Single Zone Constant Volume Heat Pump definition

**Specific Purpose:** Add definition for Single Zone Constant Volume Heat Pump

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) - Solar Pool Heating System

**Specific Purpose:** Add definition for Solar Pool Heating System

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** 100.1(b) – Ventilation Systems definitions

**Specific Purpose:** The specific purpose of the revision in the definitions is to add a specification of having ‘at least one’ mechanical device to comply with the ventilation strategies. The revised definitions are:

VENTILATION SYSTEM, BALANCED

VENTILATION SYSTEM, EXHAUST

VENTILATION SYSTEM, SUPPLY

**Necessity:** These changes are necessary as several buildings provide ventilation systems, particularly balanced ventilation systems, through two separate continuously operating fans and adding the above specification would improve general clarity for the updated changes made to the multifamily ventilation and compartmentalization requirements while ensuring internal consistency of the Energy Code.

**Section:** 100.1(b) – Water Heater definition

**Specific Purpose:** The specific purpose of the change is to group all related water heater definition into a single heading. The following definitions have been grouped under water heater:

- Consumer water heater
- Integrated heat pump water heater
- Split-refrigerant heat pump water heater
- Split-hydronic heat pump water heater
- Multi-pass water heater
- Single-pass water heater

**Necessity:** These changes are necessary to improve readability and provide easy access to all related water heater definitions. The changes ensure that the terms used within 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, these new terms ensure consistency between the Energy Code and the other Parts of the Building Standards Code.

**Section:** 100.1(b) – Water Heater – Consumer water heater definition

**Specific Purpose:** The purpose of this change is to add the definition for consumer water heater as a consumer product regulated under USDOE.

**Necessity:** The changes ensure that the terms used within 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, these new terms ensure consistency between the Energy Code and the other Parts of the Building Standards Code.

**Section:** 100.1(b) – Water Heater – Heat Pump Water Heater definition

**Specific Purpose:** The purpose of this change is to move the heat pump water heater definition under water heater definition.

**Necessity:** These changes are necessary to improve readability and provide easy access to all related water heater definitions.

**Section:** 100.1(b) – Water Heater – Integrated Heat Pump Water Heater definition

**Specific Purpose:** The purpose of this change is to add definition for integrated heat pump water heater.

**Necessity:** These changes are necessary to ensure that new ventilation requirements in 110.3(c)7 only applies to types of HPWHs that need ventilation and to ensure correct use of ventilation methods to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) – Water Heater – Split-Refrigerant Heat Pump Water Heater definition

**Specific Purpose:** The purpose of this change is to add definition for Split-Refrigerant heat pump water heater.

**Necessity:** These changes are necessary to ensure that new ventilation requirements in 110.3(c)7 only applies to types of HPWHs that need ventilation and to ensure correct use of ventilation methods to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) – Water Heater – Split-Hydronic Heat Pump Water Heater definition

**Specific Purpose:** The purpose of this change is to add definition for Split Hydronic heat pump water heater.

**Necessity:** These changes are necessary to ensure that new ventilation requirements in 110.3(c)7 only applies to types of HPWHs that need ventilation and to ensure correct use of ventilation methods to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 100.1(b) – Water Heater – Multi-Pass Water Heater definition

**Specific Purpose:** The purpose of this change is renamed and modify the existing multi-pass heat pump water heater definition to apply generally to all multi-pass water heater.

**Necessity:** Multi-pass operation is not unique to heat pump water heater. By separating operation mode definition and the heat pump water heater definition, the changes ensure that the terms used within the regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations.

**Section:** 100.1(b) – Water Heater – Single-Pass Water Heater definition

**Specific Purpose:** The purpose of this change is renamed and modify the existing single-pass heat pump water heater definition to apply generally to all single-pass water heater.

**Necessity:** single-pass operation is not unique to heat pump water heater. By separating operation mode definition and the heat pump water heater definition, the changes ensure that the terms used within the regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations.

**Section:** 100.2 – CALCULATING ENERGY BUDGETS

**Specific Purpose:** The purpose of the changes to this section is to make it clear that energy budgets are expressed using two terms, Long-term System Cost and Source Energy. The term Time Dependent Valuation is no longer being used. The title of the section is changed to Calculation of Energy Budgets. The purpose of energy budgets is explained consistent with other sections of the Energy Code and JA3. The terms that are used for established energy budgets are explained consistent with definitions and JA3.

**Necessity:** These changes are necessary to clarify and make specific how energy budgets are calculated. These changes align with language that is used other sections of the Energy Code.

**Section:** Section 110.2(a)

**Specific Purpose:** Update Table reference and include reference to federal minimum efficiency requirements.

**Necessity:** Several efficiency tables were deleted so the reference to Tables 110.2-A through Table 110.2-N was updated to Tables 110.2-A through Table 110.2-L. Where the federal minimum efficiency requirements were the same as the 2022 version of ASHRAE 90.1, the table references federal minimum requirements. If the entire table references federal minimum requirements, these table was removed. Where the 2022 version of ASHRAE 90.1 was different from existing federal minimum requirements, the 2022 version of ASHRAE 90.1 efficiencies were identified. These were located in Table

110.2-F Electrically Operated Variable Refrigerant Flow (VRF) Air Conditioners Minimum Efficiency Requirements, and Table 110.2-H DX-DOAS Units, Single Package and Remote Condenser – Minimum Efficiency Requirements. The CEC is identifying these efficiencies to capture associated energy savings before these efficiencies are federally adopted.

**Section:** 110.2(b)

**Specific Purpose:** The purpose of this change is to identify the requirement for supplementary heater controls for heat pumps in single family buildings described in Section 150.0(h)7. This alteration is to provide clarity and distinction in heat pump control requirements between single-family buildings and other building types, such as non-residential and multifamily buildings.

**Necessity:** The necessity for the proposed amendment to Section 110.2(b) is to provide specificity in heat pump controls for single-family buildings. This amendment is crucial for identifying and delineating the essential requirements for supplementary heater controls in the context of heat pumps within single-family dwellings.

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

**Specific Purpose:** The purpose of this change is to provide an exception to the requirement disallowing supplementary heater use when heating loads can be met by heat pumps in cases where heat pumps are meeting requirements in 150.0(h)7 or 150.0(i)2.

**Necessity:** The addition of this exception is necessary to ensure that the requirement disallowing supplementary heater use when heating loads can be met by heat pumps does not interfere with requirements that supplementary heaters have a cutoff temperature of 35°F. The clarification in this exception is needed for achieving the desired functionality and reliability of heat pump systems across varying environmental conditions.

**Section:** Section 110.2(e) Open and Closed-Circuit Cooling Towers

**Specific Purpose:** The revisions to this section will remove the option for flow-based controls, specifies water parameters for blowdown controls in a new table, and adds testing requirements by reference to NA 7.5.18.

**Necessity:** Requirements are included to reduce water usage of open and closed-circuit cooling tower systems. Flow based controls can result in blowdown of cooling towers before appropriate parameters are met. Additional testing requirements are included to ensure that the blowdown controls are working properly as faulty controls have previously been shown to increase water usage. Expanding water parameters also ensures that cooling towers operate effectively, reducing maintenance and degraded energy performance. These requirements for blowdown controls will reduce excessive **unnecessary** water use as directed by California Public Resources Code Sections **25402**. Energy usage is expected to remain unchanged.

**Section:** Table 110.2-A-1

**Specific Purpose:** This table was added to provide the minimum parameters for cooling tower blowdown.

**Necessity:** Cooling towers are required to replace water within the system due to build up of different particulates during operation. Table 110.2-A-1 provides the value for different cooling tower water properties that should be reached before cooling tower blowdown occurs. This ensures that water in the cooling tower is not replaced before it is necessary. This will result in less water used by the cooling tower and reduction in water consumption and associated energy savings at the site. These parameters are consistent with recirculation water properties identified in ANSI/ASHRAE 189.1 and, therefore, are necessary to be consistent with industry standards.

**Section:** Table 110.2-A through 110.2-N

**Specific Purpose:** Remove specific numerical federal minimum values and include a general reference federal minimum value. Tables 110.2-E, 110.2-I, 110.2-J, 110.2-L, and 110.2-M were removed because they were completely reliant on federal minimum values.

**Necessity:** Tables 110.2A through 110.2-N include federal minimum requirements as a courtesy to builders. However, due to timing for adoption of federal minimum requirements, the values in the table can be out of date causing confusion. Tables that are based only on federal minimum requirements were removed. Additionally, in tables that include both state and federal minimum requirements, the federal value was not included.

**Section:** Table 110.2-F

**Specific Purpose:** Table 110.2-G was renamed to Table 110.2-F to reflect removal of tables. Specific federal minimum values were removed because they were completely reliant on federal minimum values. Minimum efficiencies reliant on ASHRAE 90.1 were updated to reflect minimum efficiencies as of 01/01/2024.

**Necessity:** Table 110.2-F include federal minimum requirements as a courtesy to builders. However, due to timing for adoption of federal minimum requirements, the values in the table can be out of date causing confusion. In Table 110.2-F, the federal value was not included. A separate supporting document is expected to be created to include these federal required values. This supporting document can be updated as necessary if federal requirements change. Additionally, Table 110.2-F includes minimum efficiency requirements based on ASHRAE 90.1. These minimum efficiencies are going to be updated on 01/01/2024. Since the 2025 Energy Code is expected to go into 01/01/2026, the minimum efficiencies in Table 110.2-F were updated to reflect the ASHRAE 90.1 minimum efficiencies that would be in effect on or after 01/01/2024.

**Section:** Table 110.2-G

**Specific Purpose:** Table 110.2-H was renamed to Table 110.2-G to reflect removal of tables. Specific federal minimum values were removed because they were completely reliant on federal minimum values. Minimum efficiencies reliant on ASHRAE 90.1 were updated to reflect minimum efficiencies as of 01/01/2024.

**Necessity:** Tables 110.2-G include federal minimum requirements as a courtesy to builders. However, due to timing for adoption of federal minimum requirements, the values in the table can be out of date causing confusion. In Table 110.2-G, the federal value was not included. A separate supporting document is expected to be created to include these federal required values. This supporting document can be updated as necessary if federal requirements change. Additionally, Table 110.2-G includes minimum efficiency requirements based on ASHRAE 90.1. These minimum efficiencies are going to be updated on 01/01/2024. Since the 2025 Energy Code is expected to go into 01/01/2026, the minimum efficiencies in Table 110.2-G were updated to reflect the ASHRAE 90.1 minimum efficiencies that would be in effect on or after 01/01/2024.

**Section:** Table 110.2-H

**Specific Purpose:** Update minimum efficiency requirement based on ASHRAE 90.1 efficiencies.

**Necessity:** Efficiency requirements for this equipment has been updated in ASHRAE 90.1. Table 110.2-H was updated to align with these revised efficiency values.

**Section:** Table 110.2-I

**Specific Purpose:** Table 110.2-N was renamed to Table 110.2-I to reflect removal of tables. The new table breaks out efficiency requirements for cooling operations.

**Necessity:** The table was broken up for ADA purposes. Values were also updated to match the most recent version of ASHRAE 90.1. This table specifically focuses on the cooling operation requirements.

**Section:** Table 110.2-J

**Specific Purpose:** Table 110.2-J was added and named to reflect removal of tables. The new table breaks out efficiency requirements for heat pump requirements originally included in Table 110.2-N.

**Necessity:** The table was broken up for ADA purposes. Values were also updated to match the most recent version of ASHRAE 90.1. This table specifically focuses on heat pump requirements.

**Section:** Table 110.2-K

**Specific Purpose:** Table 110.2-K was added and named to reflect removal of tables. The new table breaks out efficiency requirements for simultaneous heating and cooling requirements originally included in Table 110.2-N.

**Necessity:** The table was broken up for ADA purposes. Values were also updated to match the most recent version of ASHRAE 90.1. This table specifically focuses on simultaneous heating and cooling requirements.

**Section:** Table 110.2-L

**Specific Purpose:** Table 110.2-L was added and named to reflect removal of tables. The new table breaks out efficiency requirements for heat recovery which would have been added to Table 110.2-N.

**Necessity:** The table was broken up for ADA purposes. Values were also updated to match the most recent version of ASHRAE 90.1. This table specifically focuses on heat recovery requirements.

**Section:** 110.3(c)7

**Specific Purpose:** The specific purpose of this change is to add mandatory ventilation and backup heat requirements to heat pump water heater installation to ensure best practice in heat pump water heater installation and energy efficiency.

**Necessity:** Recent field studies and laboratory testing indicated degraded HPWH performance and efficiency when they are installed in confined spaces without adequate ventilation. Installation in such condition attributes to lower evaporator temperature and increase of backup electric resistance use, which results in excessive energy use and lower efficiency than the assumptions in the performance compliance calculation. Backup heat is necessary to provide acceptable water heater performance in colder climates. When the inlet air temperature is below the HPWH compressor cutout temperature, HPWH without backup heat cannot produce more hot water, which can lead to unacceptable occupant experience and safety concerns.

**Section:** 110.4(a)

**Specific Purpose:** The specific purpose of this change is to clarify that the mandatory requirements shall apply to pool, spa, or pool and spa combinations.

**Necessity:**

These terms ensure and improve the general clarity and internal consistency of the Energy Code, providing stakeholders with precise and unambiguous guidelines for compliance, while also promoting energy efficiency in pools, spas, or pool and spa combinations.

**Section:** 110.4(a)1

**Specific Purpose:** The specific purpose of this change is to update references to the applicable appliance standards by referencing Section 110.1.

**Necessity:**

These terms ensure and improve the general clarity and internal consistency of the Energy Code, providing stakeholders with precise and unambiguous guidelines for compliance, while also promoting energy efficiency in pools, spas, or pool and spa combinations.

**Section:** 110.4(a)3

**Specific Purpose:** The specific purpose of this change is clean up existing code language for pool heater instructions by removing instruction requirement for pool cover based on industry feedback.

**Necessity** The pool cover instruction requirement is outside the scope of a pool heater manufacturer is required to know and provide to the consumer. These changes are necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 110.4(a)4

**Specific Purpose:** The specific purpose of this change is to remove subsection 4 and exception 1 and 2 to Section 110.4(a)4

**Necessity:** This language is superseded by the new pool heating equipment language in 110.4(c) and therefore is no longer needed. Exception 1 to 110.4(a)4 for listed package units is covered under the new Exception 1 to 110.4(c) for portable electric spas. Exception 2 to 110.4(a)4 is covered under the new heating source sizing requirement under 110.4(a)3.

**Section:** 110.4(b)1, Table 110.4-A

**Specific Purpose:** The specific purpose of this change is to add applicable appliance standard for each heating source type to align with federal and industry standards.

**Necessity:** These changes are necessary to align with federal and industry standards, are necessary to promote energy efficiency and safety in the use of pool and spa heating systems. These terms ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 110.4(b)2

**Specific Purpose:** The specific purpose of this change is to modify the pipe requirement to 18 inches of horizontal or vertical pipe between the pool heater filter to the heater or dedicated suction and return lines, or built-in or built-up connections. This modification addresses industry feedback that the previous requirement of 36 inches is excessive.

**Necessity:** This change is necessary to be consistent with section 5.4.3 of the ANSI/PHTA/ICC-15 2021 Standard for Residential Swimming Pool and Spa Energy Efficiency. The updated requirement still provides enough clearance for future installation of solar heating equipment.

**Section:** 110.4(b)3 & (b)4

**Specific Purpose:** The specific purpose of this change is to update numbering of the subsection.

**Necessity:**

This is to ensure and improve the general clarity and internal consistency of the Energy Code, providing stakeholders with precise and unambiguous guidelines for compliance.

**Section:** 110.4(c)

**Specific Purpose:** The specific purpose of this change is to add new heating source sizing requirements for the primary pool heater. This change requires a solar pool heating system, a heat pump pool heater as the primary heating system, or a heating system that derives at least 60 percent of heating energy from on-site renewable or recovered energy.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code

Sections 25213 and 25402. These additions reduce Long-term System Cost and Source Energy use via the use of cost-effective solar thermal swimming pool applications, properly sized heat pump pool heater, or alternative energy efficient pool heating technologies.

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

**Specific Purpose:** The specific purpose of this change is to support the new heating source sizing requirement in 110.4(c). Portable electric spas are not required to comply.

**Necessity:** These changes are necessary because portable electric spas are subject to regulation under California Appliance Efficiency Standards (Title 20) and are regulated separately as a package by the U.S. Department of Energy (DOE). This product has been optimized to perform efficiently through these rulemaking processes. These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 110.4(c) Exception 2

**Specific Purpose:** The specific purpose of this change is to support the new heating source sizing requirement in 110.4(c). Replacements of existing pool and/or spa heat systems are not required to comply.

**Necessity:** This change is necessary because of increased difficulty and cost for replacements of existing pool and/or spa heating systems. These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 110.4(c) Exception 3

**Specific Purpose:** The specific purpose of this change is to support the new heating source sizing requirement in 110.4(c). A pool/and or spa that is heated solely by a solar swimming pool or spa heating system without any backup heater are not required to comply.

**Necessity:** This change is necessary because a pool that relies only on solar heating does not consume any energy from utility sources. These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 110.4(c) Exception 4

**Specific Purpose:** The specific purpose of this change is to support the new heating source sizing requirement in 110.4(c). A heating system used solely for permanent spa in existing building with gas availability is not required to comply.

**Necessity:** This change is necessary based on industry feedback. The typical user behavior and expectation for permanent spa requires rapid heating in the evening. It is more difficult to align the energy efficiency benefit of the requirements in 110.4(c) with the typical usage pattern for permanent spa only systems.

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

**Specific Purpose:** The specific purpose of this change is to support the new heating source sizing requirement in 110.4(c). A heating system used solely for permanent spa in existing building with inadequate solar access is not required to comply.

**Necessity:** This change is necessary based on industry feedback. Existing building with inadequate solar access preclude the use of 110.4(c)1. The typical user behavior and expectation for permanent spa requires rapid heating in the evening. It is more difficult to align the energy efficiency benefit of the requirements in 110.4(c)2 and (c)3 with the typical usage pattern for permanent spa only systems.

**Section:** Table 110.6-B

**Purpose:** Formatted tables to comply with the ADA provisions.

**Necessity:** To meet the ADA provisions.

**Section:** 110.8(i)2

**Specific Purpose:** The specific purpose of this change is clean up existing code language for CRRC aged solar reflectance.

**Necessity:** These changes are necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 110.8(i)3

**Specific Purpose:** The specific purpose of this change is to make sure the updated ASTM E1980 with the latest equation is being used to calculate Solar Reflectance Index (SRI).

**Necessity:** These changes are necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 110.8(j)

**Specific Purpose:** The specific purpose of this relocation is to make sure the requirement of Radiant Barrier is not missed.

**Necessity:** These changes are necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section** 110.12(a)2

**Specific Purpose:** The specific purpose of the change is to replace “pathway” with “protocol” in the term “wired or wireless bidirectional communication”, and the change is to clarify the demand responsive controls communications. The word “protocol”, according to Merriam-Webster Dictionary, means a set of conventions governing the treatment and especially the formatting of data in an electronic communication system, such as network protocols, whereas the word “pathway” could be understood to be a path or a particular way of achieving something. The revised term “wired or wireless bidirectional communication protocol” with the word “protocol” conveys a more accurate

information about what constitutes as the qualified wired and wireless bidirectional communications.

**Necessity:** The proposed changes with the usage of the term “wired or wireless bidirectional communication protocol” are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code. The term “wired or wireless bidirectional communication protocol” is commonly used in the field of technology and in information and communications industry, whereas the term “wired or wireless bidirectional communication pathway” is not commonly used.

#### **Section 110.12(a)4**

**Specific Purpose:** The specific purpose of the change is to replace “communication” with “the demand response signal” and the change is to clarify it is during the scenario that the demand response signal is disabled or unavailable that the requirement of Section 110.12(a)4 would apply.

**Necessity:** The proposed changes with the usage of the term “the demand response signal” are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code. The term “the demand response signal” conveys a more accurate information about what constitutes as the condition of being disabled or unavailable for the demand responsive controls.

#### **Section 110.12(c)**

**Specific Purpose:** The specific purpose of the change is to specify more accurately that the general lighting in the spaces required to meet Section 130.1(b) and 160.5(b)4B, multilevel lighting controls, shall be controlled with demand-responsive lighting controls and to revise the illuminance uniformity requirements with reference to Section 130.1(b) and 160.5(b)4B instead of Table 130.1-A.

The specific purpose of the change to Section 110.12(c)2 is to replace the phrase “that is subject to the requirements” with “in the spaces required to meet” and to delete the phrase “and may control additional lighting”. The phrase “may control additional lighting” is an option and not a mandatory requirement and the specific purpose of the change is to simplify the language in deletion of the voluntary requirement, “may control additional lighting”, from the mandatory code section.

The specific purpose of the change to Section 110.12(c)3 is to replace the phrase “uniform level of illumination requirements in Table 130.1-A” with “illuminance uniformity requirements of Section 130.1(b)”. Since Table 130.1-A is proposed to be removed, the change is to update the language and to reference the illuminance uniformity requirements to Section 130.1(b).

**Necessity:** The proposed change to specify more accurately that the general lighting in the spaces required to meet Section 130.1(b) is reasonably necessary to improve the general clarity internal consistency of the Energy Code.

The proposed change of Section 110.12(c)2 is necessary to improve the clarity of the requirements without changing the mandatory requirements. The proposed change of Section 110.12(c)3 is necessary to update the whereabouts of the illuminance

uniformity requirements for the demand responsive lighting controls and the applicable general lighting to comply with.

**Section:** 110.12(e)

**Specific Purpose:**

The specific purpose of the change is to clarify building spaces already have demand responsive lighting controls are required to have demand responsive controlled receptacles and to delete Exception 1.

The specific purpose of the change is to add references to Section 130.5(d) and 160.6(d) for where the spaces are required to have demand responsive controlled receptacles to be installed.

**Necessity:** The proposed change to specify building spaces already have demand responsive lighting controls are required to have demand responsive controlled receptacles is necessary to clarify it is building spaces but not an entire building for meeting the demand responsive controlled receptacles requirements.

The proposed change to add references to Section 130.5(d) and 160.6(d) to expressly specified the spaces that are required to have demand responsive controlled receptacles to be installed so that to avoid any confusions for the whereabouts that the demand responsive controlled receptacles are required.

The proposed changes can improve the general clarity and internal consistency of the Energy Code.

**Section:** 110.12(e) Exception 1

**Specific Purpose:** The specific purpose of the change is to delete the Exception 1 to Section 110.12(e) and the change is to harmonize with the other proposed change that clarifies the spaces, not buildings, are required have demand responsive controlled receptacles.

**Necessity:** The proposed changes to delete the Exception 1 to Section 110.12(e) could simplify the code language and the changes are reasonably necessary to ensure the language is easier to read and comprehend.

The proposed changes can improve the general clarity and internal consistency of the Energy Code.

**Section:** 120.1(c)2A and B

**Specific Purpose:** The specific purpose of these non-substantial changes is aligning natural ventilation requirements with ASHRAE 62.1 – 2022 version. These changes make clearer the requirements of different building openings and correctly cites the new sections in ASHRAE 62.1-2022 version which were unaligned previous code cycle.

**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 rewording and aligning of citations ensure and improves the general clarity and internal consistency of the Energy Code.

**Section:** 120.1(c)2, 120.1(c)2D, Exception 1 to Section 120.1(c)2D, Exception 2 to Section 120.1(c)2D

**Specific Purpose:** The specific purpose is to move the mechanical ventilation requirements from Section 120.1(c)2 to Section 120.1(c)2D for better clarity of the requirements of mechanical ventilation even with a natural ventilation design approach.

**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. Previous cycles there have been misinterpretation that mechanical ventilation was not a requirement when using natural ventilation. Moving the requirement from the body of the intro text to this section into the listed requirements below make this requirement clearer. Additionally, this new term ensures and improves the general clarity and internal consistency of the Energy Code

**Section:** 120.1(c)3

**Specific Purpose:** The specific purpose of these changes is to revert the language to align with 2019 Building Energy Code ventilation logic. The exception that was added in 2022 Building Energy Code was intended to clarify this section, but instead had remove this 'greater than logic' for ventilation.

**Necessity:** These changes reintroduce the equations and that 'greater of' comparison but does not change the ventilation rates from previous cycles. This prevents designers from taking an exception to only use a designed occupancy when previous cycles designed occupancy method and area method had to be compared for the larger ventilation rate.

**Section:** 120.1(d)4E

**Specific Purpose:** The specific purpose of these changes is to align with the changes made to the minimum ventilation section 120.1(c)3 and Table 120.1-A. This increases clarity of the requirements for minimum ventilation which has been an issue for the last two code cycles.

**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. These changes allow the designer to understand why the ventilation rates are at specific values which improves the general clarity and internal consistency of the Energy Code.

**Section:** 120.1(d)5

**Specific Purpose:** The specific purpose of these changes is to make clear the requirements of this section without changing stringency and to follow similar format of previous in in 120.1.

**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. In the previous code

cycle designers are seeming to avoid this requirement where the requirement language is in the intro body of this section. Moving from the intro body into a list format improves compliance by showing the requirements explicitly.

**Section:** 120.1(f)1

**Specific Purpose:** The specific purpose of this change is to modify the language for clarity without changing the intent.

**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:** 120.1(g)

**Specific Purpose:** Updated to the latest ASHRAE 62.1 sections.

**Necessity:** These changes are essential to make sure that the provisions in the subsection are clear and unambiguous, enabling non-technical readers to easily locate and comprehend the technical requirements

**Section:** Table 120.1-A

**Specific Purpose:** The specific purpose of these changes is to align the table with the California Mechanical Code and the revision to the minimum ventilation rates in 120.1(c)3.

**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 allows designers to see the comparison of ventilation rates between the area method or person method which has been a confusion among the industry since the change went into effect in 2019. This reverts back to 2016 using a greater than equation and provides more transparency in the ventilation rates and these changes are not intended to affect the current minimum ventilation requirements.

**Section:** Table 120.1-B and Table 120.1-C

**Specific Purpose:** The specific purpose is to align with the table updates provided in ASHRAE 62.1 – 2022 version. These changes make clearer of new space requirements for air classification and minimum exhaust which allows the Energy Code to align with new table references in ASHRAE 62.1-2022 version which were unaligned previous code cycle.

**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 rewording and aligning of citations ensure and improves 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(b)4 – Exception 1 – Edited for clarity

**Specific Purpose:** The specific purpose of this change is to modify the language for clarity without changing the intent.

**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:** 120.2(i)8

**Specific Purpose:**

The purpose of this change is to clarify that the CEC does not certify FDD systems but only accepts specific third-party certifications.

**Necessity:**

This change is necessary to clarify the role of the CEC in accepting manufacturer certifications of FDDs.

**Section:** 120.2(l)

**Specific Purpose:** The specific purpose of this change is to add mandatory requirements to limit hot water supply temperature to no greater than 130 °F for HVAC space-conditioning systems. These changes intend to save energy by reducing pipe distribution energy loss. This new measure will be required in newly constructed buildings as well as additions and alterations.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402. This requirement helps save energy by reducing the energy used to generate higher temperatures and piping distribution energy losses.

**Section:** 120.3(a) General Requirements

**Specific Purpose:** The purpose of this change is to add process heating system piping and process cooling system piping to the list of piping conditions where pipe insulation requirements are applicable. This will extend existing insulation requirements identified in Section 120.3 to covered process heating and cooling systems.

**Necessity:** Currently there are no piping insulation requirements for covered process heating and cooling pipes. Extending existing insulation requirements for pipe insulation will reduce energy loss from hot and cold pipe distribution systems serving covered processes. These additional requirements for insulation to heating and cooling distribution pipes will reduce excessive energy uses as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.3(c) Insulation Thickness

**Specific Purpose:** The purpose of this change is updating references to Table 120.3-A.  
**Necessity:** The original Table 120.3-A was revised into Table 120.3-A1 and 120.3-A2 for ADA purposes. References to the original Table 120.3-A were updated to reflect this change.

**Section:** Table 120.3-A Pipe Insulation Thickness

**Specific Purpose:** Table 120.3-A was broken up into two tables, Table 120.3-A1 and Table 120.3-A2. Table 120.3-A1 and Table 120.3-A2 were revised to add process heating system piping in the list of insulation requirements associated with space heating and service water heating. Additionally, process cooling system piping was added in the list of insulation requirements associated with space cooling systems. These additions extend insulation requirements to covered process distribution systems piping.

**Necessity:**

Tables 120.3-A was broken up into two table to better meet ADA requirements. Extending insulation requirements to covered process system piping will reduce energy usage in covered process facilities. By using the existing Tables an additional table did not need to be added in Section 120.6. These additional requirements for insulation to heating and cooling distribution pipes will reduce excessive energy uses as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.3 Exception 5

**Specific Purpose:** An exception has been added for the following components within process equipment: Fluid pumps, steam traps, blow-off valves, and piping. These components cannot be insulated due to the necessity of access for maintenance reasons.

**Necessity:** These components located within equipment are not easily accessible for installation and maintenance of insulation. Additionally, space constraints within equipment and operation of these components limit the effectiveness of insulation. This would increase costs for insulation projects. This exception is necessary due to practical capability of installing and maintaining insulation and to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 120.3 Exception 6

**Specific Purpose:** An exception has been added for the following components within process equipment: Valves, strainers, coil u-bends, air separators with at least 0.5 inches of insulation, and piping within process equipment. These components cannot be insulated due to the necessity of access for maintenance reasons.

**Necessity:** These components located within equipment are not easily accessible for installation and maintenance of insulation. Additionally, space constraints within equipment and operation of these components limit the effectiveness of insulation. Minimum insulation of 0.5 inches will reduce energy loss to the environment. This would increase costs for insulation projects. This exception is necessary due to practical

capability of installing and maintaining insulation and to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 120.4(g)1

**Purpose:** The purpose of this change is to delete field verification and diagnostic testing and replace it with acceptance testing.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires nonresidential duct leakage test to first be performed by a certified mechanical ATT and then field verified by an ECC-Rater (formerly referred to as a HERS rater). The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the ECC program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in nonresidential buildings is under the scope of the ATTCP program. Removing the field verification and diagnostic requirement will reduce confusion moving forward on who needs to perform the nonresidential duct leakage test.

**Section:** 120.5(a)4 and Exception to Section 120.5(a)4

**Specific Purpose:**

The purpose of these non-substantive changes is to include DOAS, HRV, and ERV systems that have a bypass damper subject to 140.4(q) to be tested under NA7.5.4 for air economizing. The exception to this testing was added to not include systems that are not subject to 140.4(q) to have a bypass damper.

**Necessity:**

These non-substantive changes are necessary to better clarify the requirements in the Energy Code. These testing requirements in NA 7.5.4 mention DOAS, HRV, and ERV in the 2022 Energy Code and these changes help to improve clarity and compliance. This benefits the CEC by complying with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** 120.6(a)3D

**Specific Purpose:** Minimum specific efficiency requirements have been added to reduce energy usage of fan-powered evaporators in refrigerated warehouses. Requirements vary based on refrigerant, type of evaporator and cooling purpose to ensure that one technology is not penalized or benefited more than another technology. Static pressure drop for evaporators was identified to ensure that excessive pressure drop does not result in reduced performance.

**Necessity:** This revision is necessary to reduce energy usage in refrigerated warehouses by reducing the use of evaporators used to provide cooling to the warehouse spaces. Other technologies supporting cooling warehouses, such as fans supporting evaporators already have efficiency requirements. These additional requirements for evaporators will reduce excessive energy uses as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 120.6(a)3E

**Specific Purpose:** Static pressure drop for evaporators was identified to ensure that excessive pressure drop does not result in reduced performance.

**Necessity:** This revision is necessary to that the energy savings associated with evaporator efficiency requirements are not lost due to increased energy usage from pressure drops within a system. These additional requirements for evaporators will reduce excessive energy uses as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** Table 120.6-A-2

**Specific Purpose:** Add table identifying specific efficiency requirements based on equipment. These efficiencies are referenced in Section 120.6(a)3D.

**Necessity:** This revision is necessary to reduce energy usage in refrigerated warehouses by reducing the use of evaporators used to provide cooling to the warehouse spaces. Other technologies supporting cooling warehouses, such as fans supporting evaporators already have efficiency requirements. These additional requirements for evaporators will reduce excessive energy uses as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** Exception 2 to Section 120.6(a)4A, Exception 1 to Section 120.6(a)4B, Exception 2 to Section 120.6(a)4C, Exception 2 to Section 120.6(a)4G and Exception 2 to Section 120.6(a)4H.

**Specific Purpose:** Add exception for condensing units that meet requirements under Title 20.

**Necessity:** Original analysis for condenser requirements in 120.6(a)4 were based on standalone condenser equipment that was not part of condenser units. Exception 1 to Section(a)4B was added in 2013 to clarify how that specific requirement applies to condenser units. This introduced confusion if requirements in 120.6(a)4 applied to condenser units as well as standalone condensers. The new exception provides clarification to how these requirements apply to condensing units, that condensing units covered by Title 20 are excepted from this requirement. This ensures that condensing units are covered either by Title 20 or by the Energy Code. The exception was applied to 120.6(a)4A, B, C, G, and H, which were condenser requirements included in 2013. 120.6(a)4D, E, and F were not included as these were not part of the original requirements that were analyzed based on standalone condenser equipment.

**Section:** Table 120.6-B

**Specific Purpose:** The specific purpose of this change is to modify the language for clarity without changing the intent.

**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:** 120.6(b)5E Transcritical CO<sub>2</sub> Gas Coolers

**Specific Purpose:** Update references for gas cooler pressure controls to 120.6(b)1B, 120.6(b)1C, and 120.6(b)1D.

**Necessity:** Section 120.6(b)1A provides specifics for compressor fan operations. These specifics do not pertain to gas cooler pressure controls. Gas cooler pressure controls are based on ambient temperatures which are described in Section 120.6(b)1B, 120.6(b)1C, and 120.6(b)1D. Revising section 120.6(b)5E aligns to similar refrigerated warehouse requirements in Section 120.6(a)8E.

**Section:** 120.6(h)2, 3, and 4

**Specific Purpose:** The specific purpose of the change to these Sections is to renumber and clean up the existing code language.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code. The existing language in Section 120.6(h)2 got removed and combined with Section 120.6(h)6 since the new lighting requirements for both indoor grows and conditioned greenhouses are aligned.

**Section:** 120.6(h)5

**Specific Purpose:**

The specific purpose of the change to this Section is to increase horticultural lighting efficiency for indoor growing and greenhouse lighting systems.

**Necessity:**

This change is necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code, Sections 25213 and 25402 et seq. Lighting efficacy for indoor grows and greenhouses increased to 2.3 from 1.9 and 1.7 micromoles per Joule, respectively.

**Section:** 120.6(k)

**Specific Purpose:** The specific purpose of this change is to add mandatory requirements for newly constructed commercial kitchens to have infrastructure to support an all-electric cookline. Currently commercial kitchens are not required to have all-electric infrastructure and retrofit costs are more costly than including them in a new build.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402. These requirements promote energy efficiency by ensuring infrastructure is installed for when the building owner decides to move forward with an all-electric commercial kitchen.

**Section:** Exception to Section 120.6(k)

**Specific Purpose:** The specific purpose of this change is to add an exception for healthcare facilities since they were not included in the cost benefit analysis. Healthcare facilities have multiple kitchen types and schedules and were not included in the scope of the proposal.

**Necessity:** These changes are necessary to prevent these requirements from applying to healthcare facilities where cost benefit have not been analyzed.

**Section:** 120.7

**Purpose:** The specific purpose of this change is to rename Section 120.7 to “Mandatory Requirements for Building Envelope” to make it clear to the reader that the requirements found within this section apply to more than just insulation.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 120.7

**Purpose:** The specific purpose of this change is to update the subsections include within Section 120.7 to include the new requirements of Section 120.7(d) and 120.7(e) but striking (c) and adding (e) at the start of the section.

**Necessity:** This change is necessary to ensure that the 120.7 requirements for non-residential and hotel/motel buildings clearly include the requirements contained in Sections 120.7(d) and 120.7(e).

**Section:** 120.7(d)

**Purpose:** The specific purpose of this change is to add a mandatory requirement for exterior windows in a newly constructed building to meet a minimum U-factor of U-0.47 to limit how much window efficiency can be traded away by non-envelope systems.

**Necessity:** A minimum U-factor of U-0.47 is necessary because it ensures that exterior windows in newly constructed building perform at a minimum level of performance and do not consume a wasteful, or uneconomical amount of energy.

**Section:** 120.7(e)

**Purpose:** The specific purpose of this change is to add mandatory requirement for a vestibule enclosing the main entrance for buildings of a certain occupancy (A, B, E, I, and M) with high traffic through their main entrances, so they do not consume more energy than is otherwise needed to keep occupants comfortable.

**Necessity:** This change is reasonably necessary to ensure that buildings with high traffic main entrances limit the amount of air infiltration through the door, thereby reducing the amount of energy needed to condition that space. These changes are necessary to increase energy efficiency via cost effective building design standards as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 130.0(a)

**Specific Purpose:** The specific purpose of this change is to remove the note as reference the language for clarity without changing the intent.

**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:** 130.0(b)

**Specific Purpose:** The specific purpose of this change is to remove the note as reference the language for clarity without changing the intent.

**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** 130.1(a)

**Specific Purpose:** The proposed change is to rename the term as “manual controls” (previous term “manual area controls”) and the other term as “enclosed space” (previous term “area enclosed by ceiling partitions”). The change to rename the term of Section 130.1(a)1, the section title and other lighting section locations that have the usage of the previous terms. Both terms are used in the national energy model code, IECC and using similar terms can provide a code language widely available to read and comprehend.

The third proposed change is to clarify Section 130.1(a)2, to consolidate Exception 1 as part of Section 130.1(a)2, and to remove the Exception. The change can provide a code language easier to read and comprehend.

**Necessity:** The change to use the terms, “manual controls” and “enclosed spaces” can provide an easier read to readers who may use both the IECC and California Energy Code. The name changes do not alter the mandatory requirements of the section for providing manual controls for the mandated locations.

The change to clarify and revise Section 130.1(a)2 is reasonably necessary to provide more concise language that can be easier to read and are less burdensome to comprehend.

The changes improve the general clarity and internal consistency of the Energy Code.

**Section 130.1(a)1: Exception to 130.1(a)1**

**Specific Purpose:** The proposed change is to rename the term as “spaces” (previous term “areas”) and the change is to harmonize the usage of both terms, “spaces” and “enclosed space” in Section 130.1(a). The change to the use of term “enclosed space” has been provided with its specific purpose and necessity in the other part of this ISOR document.

**Necessity:** The change to use the term “spaces” is to harmonize the usage of both terms, “spaces” and “enclosed space” in Section 130.1(a) and to improved clarify and ensure consistency of the Energy Code.

The name changes do not alter the mandatory requirements of the section for providing manual controls for the mandated locations. The changes improve the general clarity and internal consistency of the Energy Code.

### **Section 130.1(a)2: Exception 1 to 130.1(a)2**

**Specific Purpose:** The proposed change is to delete Exception 1 - the exception contains a list of spaces deemed to have the manual controls located outside of the controlled space.

**Necessity:** The change to delete Exception 1 is reasonably necessary to provide a code language easier to read and comprehend. Section 130.1(a)2 already allows spaces that are not appropriate to have the manual controls inside the controlled space to be located outside the controlled space. Removal of the exception with the long list of spaces would eliminate the redundant language of the exception and would provide a code language easier to read and comprehend.

The changes improve the general clarity and internal consistency of the Energy Code.

### **Section 130.1(b)**

**Specific Purpose:** The proposed change is to rename the term as “enclosed space” (previous term “enclosed area”). The term is used in the national energy model code, IECC and using similar terms can provide a code language widely available to read and comprehend. proposed change to section 130.1(b) includes consolidating the controls requirements of Table 130.1-A, Subsection 130.1(b)1 and 130.1(b)2 to Section 130.1(b) and to the remove Table 130.1-A. The requirements and to provide “continuous dimming from 10-100 percent” are retained and moved to be part of Section 130.1(b). The continuous dimming from 10-100 percent is retained as continuous dimming requirement is applicable to LED light sources, which is the widely adopted and in use in all commercial and nonresidential lighting applications. The controls requirements for fluorescent lamp as light sources are not proposed to be retained as a California law (AB-2208) bans the sales and distribution of fluorescent lamps as a new manufactured product after 2024 and 2025 – banning screw and bayonet base type compact fluorescent (CFL) lamps after January of 2024 and banning pin-base type CFL) and linear fluorescent lamps after January of 2025. The requirements to maintain “illuminance uniformity” is removed and is not required for meeting the multilevel lighting control requirements.

**Necessity:** These changes are reasonably necessary to ensure the usage of the same term “enclosed space” can provide an easier read to readers who may use both the IECC and California Energy Code. The name changes do not alter the mandatory requirements of the section for providing multilevel lighting controls for the mandated locations.

The changes to revise and consolidate the requirements of Section 130.1(b), including removal of Table 130.1-A and consolidation of subsection 1 and subsection 2 as part of Section 130.1(b), are reasonably necessary to provide more concise language that can be easier to read and are less burdensome to comprehend.

The changes to repeal the uniformity requirements for multilevel lighting controls are necessary as the term “illuminance uniformity” in Section 130.1(b) is not the same as “illuminance uniformity” used by lighting industry. Illuminance uniformity in illuminating engineering refers to the ratio of maximum to average illuminance or the ratio of average to minimum illuminance over the practical work surface within a space that receives illuminance. Reducing the light level in the space is inherently changing the illuminance of the controlled space at each controlled level of the multilevel lighting controls. The change is necessary as it would provide flexibility for the practitioners to meet the Illuminating Engineering Society’s (IES) recommended maintained illuminance targets including illuminance uniformity and to ensure the requirements of Section 130.1(b) can be met without having to meet a seemingly competing or conflicting illuminance uniformity requirement.

The change to clarify and revise Exception 1

The changes improve the general clarity and internal consistency of the Energy Code.

**Section 130.1(b): Exception 1 to 130.1(b)**

**Specific Purpose:** The proposed change is to clarify the Exception about the enclosed space that has only one luminaire and to revise that as long as there is only one luminaire in the space, it is not required to comply with the multilevel lighting controls requirements. The change is to clarify the requirements related to LED light source technology and LED luminaires that they are widely adopted and in used in all commercial and nonresidential lighting applications and LED light sources are not in the form factor of lamps.

**Necessity:** The change to clarify and revise the Exception about the enclosed space that has only one luminaire is reasonably necessary to address the new form factor of LED light source technology and LED luminaires. The changes improve the general clarity and internal consistency of the Energy Code.

**Section 130.1(b): Exception 4 & 5 to Section 130.1(b)**

**Specific Purpose:** The proposed change is to add two new Exceptions, Exception 4 & 5.

**Necessity:** The change to add two new Exceptions, Exceptions 4 &5 is necessary to address the scenario where the light source of HID and induction may still be used for meeting the multilevel lighting control requirements. The changes improve the general clarity and internal consistency of the Energy Code.

**Section: 130.1(c)**

**Specific Purpose:** The specific purpose is to move the means of egress illumination as an exception to Section 130.1(c) and to revise with word changes to improve the readability of the language. The change to move the means of egress illumination as an exception to Section 130.1(c) is that the means of egress illumination is a life safety requirement taking precedence to the shut-off controls requirement. The editorial changes include adding the phrase “continuous illumination” so that it reads “continuous

illumination of up to 0.1 watts per square foot in any area designated for egress within a building is allowed” and revising the phrase “as defined in the California Building Code” (was “as the term is used in the California Building Code”).

**Necessity:** The editorial changes is to clarify the allowance of continuous illumination for the means of egress illumination and to state it more accurately that the term “means of egress illumination” is defined in the California Building Code. The change is necessary as the means of egress illumination is a life safety requirement taking precedence to the shut-off controls requirement.

The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section:** 130.1(c)1

**Specific Purpose:** The specific purpose is to clarify time delay requirement of occupant sensing controls and the change is specify the control time-delay setting is no more than a 20-minute time delay.

The other specific purpose is to clarify separate shutoff control zones are required for each space exceeding 5000 square feet and the change is to revise the term as “separate control zones” (was “separate controls”).

**Necessity:** The proposed change to specify the time-delay setting of occupant sensing controls is to clarify the time-delay setting required under Section 110.9 also applies to the occupant sensing controls specified under Section 130.1(c). This is reasonably necessary to include the time-delay setting requirements in this portion of the code so that this important information related to energy and cost savings from using the occupant sensing controls is readily available for readers to comprehend the code requirements.

The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section:** Exception 2 to 130.1(c)1

**Specific Purpose:** The specific purpose is to update the list of sections for which lighting in compliance with each section is not required to comply with Section 130.1(c)1 in order to reflect the changes within the shut-OFF controls section of Section 130.1(c).

The change is to remove Section 130.1(c)7 from the list and to add Section 130.1(c)6E and “lighting in stairwells and common area corridors” located in hotel/motels to the list.

**Necessity:** The change to the list of sections in the exception (Exception 2 to Section 130.1(c)1) is to reflect other changes within the shut-OFF controls section of Section 130.1(c). The change is necessary to ensure consistency and correctness of the code language.

**Section:** Exception 3 to 130.1(c)1 (Exception 3 in the 2022 Code)

**Specific Purpose:** There are several proposed changes affecting emergency lighting and means of egress illumination. The specific purpose is to move means of egress exception from Section 130.1(c)1 to Section 130.1(c); the change is to clarify the exception applies to all shut-off controls not just to subsection 130.1(c)1.

**Necessity:** The change is reasonably necessary to clarify by using the phrase “separate control zones” to convey the same control system can be used to control a space larger than 5,000 square feet as long as each control zone is designated for a space not exceeding 5,000 square feet.

**Section:** Exception 4 to 130.1(c)1

**Specific Purpose:** The specific purpose is to clarify what is considered to be “lighting equipment designated for emergency lighting” and the change is to delete the phrase, “connected to an emergency power source or battery supply”, from the Exception to Section 130.1(c)1.

**Necessity:** The change to delete the phrase, “connected to an emergency power source or battery supply”, is to harmonize between California Energy Code and California Electrical Code about lighting equipment designated for emergency lighting. California Electrical Code specify how emergency systems including emergency lighting and “lighting equipment that is designated for emergency lighting” to be connected to emergency source. The change to delete the phrase could avoid any confusions about which codes to comply with about the connection requirements of emergency lighting.

**Section** 130.1(c)3 and 4

**Specific Purpose:** The specific purpose is to clarify the automatic time-switch control requirements by removing of the phrase “other than an occupant sensing control” from Section 130.1(c)3 and 130.1(c)4.

- The removal of the subsection 130.1(c)3A.

**Necessity:** The change to remove the permissive phrase “other than an occupant sensing control” to avoid over-burdensome language and the removal is not altering the mandatory automatic time-switch control requirements. The change is necessary to produce code language easier to read so that what is not required to meet the automatic time-switch requirements is specified in an exception.

The change to remove subsection 130.1(c)3A is to remove the redundant language about meeting Section 130.1(a) as all occupant sensing controls including automatic time-switch controls are required to meet Section 130.1(a).

The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section** Exception 2 to 130.1(c)3

**Specific Purpose:** The addition of a new exception to the automatic time-switch control requirements. The exception is for areas where occupant sensing controls are installed.

**Necessity:** The change to add a new exception for areas where occupant sensing controls are installed is to clarify that the installation of occupant sensing controls would eliminate the obligation to comply with the automatic time-switch installation requirements.

**Section** Exception 1 to 130.1(c)4

**Specific Purpose:** The re-arrangement of the phrase “Automatic holiday shut-OFF features are not required” to the front of the sentence. The deletion of the word “associated” from the term “associated malls”.

**Necessity:** The changes about the automatic holiday shut-off features of automatic time-switch control is to clarify with an emphasis the exception is about the automatic holiday shut-off features so that the code requirements are easier to read and comprehend. The change to delete the word “associated” is to clarify the exception is applicable to all malls, not just associated malls. Further, the change is to avoid any confusions arising from using the term “associated malls” as it is unclear about what “associated” is being referred to.

#### **Section Exception 2 to 130.1(c)4**

**Specific Purpose:** The proposed change is to add a new exception for “areas where occupant sensing controls are installed.”

**Necessity:** The change is necessary to produce easier-to-read code language that establishes an exception to the automatic time-switch control requirements.

#### **Section 130.1(c)5**

**Specific Purpose:** The specific purpose is to delete the phrase “of any size” from the term “classrooms”, the term “conference rooms”, and the term “restrooms”.

The other purpose is to add “and in restrooms” to the regulation about “areas not required by Section 130.1(b) to have multi-level lighting controls” and to add “automatic full-on” to the regulation about occupant sensing controls that are “in areas not required by Section 130.1(b) to have multi-level lighting controls”.

**Necessity:** The change to delete the phrase “of any size” is necessary to delete the redundant language as the phrase “of any size” does not add more information about the requirement.

The change to add “and in restrooms” to the regulation about “areas not required by Section 130.1(b) to have multi-level lighting controls” is necessary as restrooms are excepted from the multi-level lighting controls requirements as stated in Section 130.1(b). The change can clarify lighting controls required for restrooms. The change to add “automatic full-on” to the regulation about occupant sensing controls is necessary to specify the type as there are occupant sensing controls other than the automatic full-on type.

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

**Specific Purpose:** The specific purpose is to clarify the subsection heading by adding add descriptive words and the change is to add “warehouse” to qualify the term “aisle ways”, to revise the term as “warehouse open areas” (was “open area”) and to add “parking garages, parking areas, and loading and unloading areas” to the subsection heading. Another change is to delete the phrase “in addition to complying with Section 130.1(c)1.”

**Necessity:** The change to clarify the subsection heading with addition of space types required for occupant sensing controls is to provide guidance for readers of the affected

space types by the occupant sensing controls requirement. The change to delete the phrase "in addition to complying with Section 130.1(c)1" is to remove the phrase as it is already a mandatory requirement for all indoor lighting controls, including this section (Section 130.1(c)6 and 7) to comply with Section 130.1(c)1.

The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section:** Exception 1 to 130.1(c)6A

**Specific Purpose:** The specific purpose is to clarify the occupant sensing controls requirements of warehouse open areas and warehouse aisle ways and the change is to delete the Exception 1 to Section 130.1(c)6A. The requirement of Section 130.1(c)6A already specifies to reduce lighting power by at least 50 percent and the Exception 1 is only repeating the requirements of Section 130.1(c)6A. The other change is to renumber the remaining exception.

**Necessity:** The change to delete the Exception 1 to Section 130.1(c)6A is necessary since LED light source technology which is widely available to be installed for general lighting applications including those for warehouse and LED light sources are capable to be reduced of its lighting power beyond 40 percent. The exception is no longer necessary for commonly used light sources in warehouses from the past such as metal halide light sources and high-pressure sodium light sources. For those occasions that may still use metal halide or high-pressure sodium light sources, Exception 2 serve as the provisions for meeting Section 130.1(c)6A.

The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section** 130.1(c)6D

**Specific Purpose:** The specific purpose is to add requirement for occupancy sensor control zones in offices greater than 250 square feet to be shown on plans and the occupancy sensor control zone information is essential information to communicate across various parties including designers, installers, building officials and acceptance testing agents for showing compliance to the occupancy sensing controls in offices greater than 250 square feet. The change is to add the requirement to Section 130.1(c)6Di.

The other specific purpose is to clarify the occupant sensing controls lighting power reduction level and to revise with the phrase "to no more than 20 percent" (was "by at least 80 percent") in Section 130.1(c)6Dii.

**Necessity:** The change to require occupancy sensor zones to be shown on plans is to ensure this essential information is documented for showing compliance to the requirements and can be readily communicated across various parties including designers, installers, building officials and acceptance testing agents and the occupancy sensing controls.

The change to use the phrase "to no more than 20 percent" is to use the same phrase in another subsection and using the same phrase can ensure consistency in the code language and to provide a code easy to understand.

The proposed changes are reasonably necessary to ensure 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 130.1(c)6C**

**Specific Purpose:** The specific purpose is to consolidate Section 130.1(c)6C and Section 130.1(c)7A into one subsection for the occupant sensing controls requirements of stairwell and corridor, so that all the occupant sensing controls requirements of stairwell and corridors (including those that provide access to guestrooms of hotel/motels) are contained in Section 130.1(c)6C. The change is to add “lighting in stairwells and common area corridors that provide access to guestrooms of hotel/motels” to Section 130.1(c)6C and to add that the lighting shall meet requirements of this section (Section 130.1(c)6C) instead of complying with Section 130.1(c)1. Lastly, the change is to delete Section 130.1(c)7A.

**Necessity:** The change to delete Section 130.1(c)7A is to consolidate the code sections about the occupant sensing controls requirements of stairwell and corridor so that the code is concise and easy to understand. “Stairwells and common area corridors that provide access to guestrooms of hotel/motels” of Section 130.1(c)7A can be classified as “corridors and stairwells” Section 130.1(c)6C. The occupant sensing controls requirements of Section 130.1(c)6C are similar to the occupant sensing controls requirements of Section 130.1(c)7A that they are both about requiring occupant sensing controls to reduce the lighting power by at least 50 percent when the space or area is unoccupied.

The minor differences between Section 130.1(c)7A and Section 130.1(c)6C are detailed as follows.

- Occupant sensing controls of Section 130.1(c)6C are required to be the partial-OFF or full (full-OFF) type, whereas the occupant sensing controls of Section 130.1(c)7A are required to be the partial-OFF type. The effect of moving the regulated spaces (stairwells and common area corridors that provide access to guestrooms of hotel/motels) to be under Section 130.1(c)6C would be an increase of compliance choice of using partial-OFF or full (full-OFF) occupant sensing controls for meeting the requirements of Section 130.1(c)6C.
- Also, the occupant sensing controls of Section 130.1(c)6A allows the lighting to be partially off when the space is unoccupied, and this is similar to Section 130.1(c)7A.
- The “lighting in stairwells and common area corridors that provide access to guestrooms of hotel/motels” is not required to comply with Section 130.1(c)1. This requirement is retained in the new Section 130.1(c)6C for the “lighting in stairwells and common area corridors that provide access to guestrooms of hotel/motels”.

The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section 130.1(c)6E, 130.1(c)7B and 130.1(c)7**

**Specific Purpose:** The specific purpose is to move the occupant sensing parking space requirements - for parking garages, parking areas and loading and unloading areas - to a new subsection, Section 130.1(c)6E, which is within Section 130.1(c)6. The requirements of Section 130.1(c)7B not to comply with Section 130.1(c)1 is retained by including the phrase “that meet the requirements below instead of complying with Section 130.1(c)1” as part of Section 130.1(c)6E - for parking garages, parking areas and loading and unloading areas.

The other specific purpose of the change is to relocate the subsection (the classification of indoor lighting as applicable to interior areas of parking garages and the classification of outdoor lighting as applicable to parking areas on the roof of a parking structure) from Section 130.1(c)7B to here (Section 130.1(c)6E. The change does not alter the mandatory requirements of occupant sensing controls for the parking garages, parking areas and loading and unloading areas covered by Section 130.1(c)6E.

The other change is to delete Section 130.1(c)7B and 130.1(c)7.

**Necessity:** The change to move Section 130.1(c)7B to Section 130.1(c)6E is to reduce one less subsection so that the code can be more concise and easier to navigate and comprehend.

The change to clarify the classifications applicable to interior areas of parking garages and parking areas on the roof of a parking structure is to avoid any confusions arising from the interpretation of parking garages and parking structures for meeting the occupancy sensing controls requirements of Section 130.1(c)6E.

The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section: 130.1(d)**

**Specific Purpose:** The specific purpose of the changes is to revise and update the daylight responsive controls (also known as automatic daylighting controls) requirements of Section 130.1(d) in consideration of the proposal measure (Docket document TN#251803, Docket Number 22-BSTD-01) and with the following changes.

- To change the section title and the term “automatic daylighting controls” to “daylight responsive controls” throughout Section 130.1(d) and other parts of the Part 6, California Energy Code. The change is to use the term “daylight responsive controls” to match the closely similar term of the national energy modal code, IECC.
- To reduce the general lighting wattage trigger threshold from 120 watts to 75 watts for skylit daylight zones, primary sidelit daylight zones, and secondary sidelit daylight zones to the daylight responsive controls requirements (was “Automatic daylighting controls” requirements). Also, the change is to add specified language for the code-triggered thresholds of general lighting within skylit daylight zones, general lighting within primary sidelit daylight zones and general lighting within secondary sidelit daylight zones. Further, Exception 3 is revised with wattage level of the general lighting luminaires in the secondary sidelit daylight zone for

which daylight responsive controls are not required for the secondary sidelit zone. To add a new numbering for locations that shall comply with the daylight responsive controls requirements and that are based on the proposed general lighting wattage trigger thresholds.

- To move the daylight responsive control requirement for parking garages in Exception 4 to the main body of Section 130.1(d). The change is to produce the code easier to navigate and comprehend.
- To clarify the daylight responsive controls requirements for long general lighting luminaires and the manner that the long general lighting luminaires can be controlled for the daylight responsive controls. The change to Section 130.1(d)2 is to replace the term “linear LED and other solid-state lighting (SSL) light sources” with “general lighting luminaires longer than 8 feet” and to revise the daylight responsive controls requirement as “general lighting luminaires longer than 8 feet shall be controlled as segments of 8 feet or less according to the type of the daylight zone in which the segment is primarily located”. Allowing general lighting luminaire segments to be up to 8 feet long for meeting the requirements would address the likely cost impacts from using linear luminaires of short segment – as linear luminaires typically come in 8-foot segments.
- To clarify the daylight responsive controls shall adjust the lighting thru continuous dimming. The change to Section 130.1(d)3A is to delete the control type with stepped controls and to add the allowance of multilevel controls to adjust the light level. The change is to specify the daylight responsive controls with continuous controls in order to align with the ubiquitous usage and installation of LED luminaires.
- To add a new subsection 130.1(d)6, “interactions with other lighting controls”. This change is to retain the requirements of Section 130.1(f) related to daylight responsive controls (was “Automatic Daylighting Controls”).

**Necessity:** The proposed changes to revise and update the daylight responsive controls are reasonably necessary as the changes have been demonstrated to be technically feasible and cost effective on the docket document (Docket document TN#251803, Docket Number 22-BSTD-01). The reorganization of the text with new numbering and other changes with the sign-post language are reasonably necessary to provide a code language easy to read and comprehend. The proposed change to revise the requirements for long general lighting luminaires and the controls manner are necessary to lessen unnecessary cost burden of any unnecessary luminaire segments shorter than 8 feet. The proposed change to add a subsection of “interactions with other lighting controls” are reasonably necessary to retain the controls interactions requirement from the proposed-to-be-deleted language of Section 130.1(f). The proposed changes are reasonably necessary to ensure the general clarity and internal consistency of the Energy Code.

**Section:** 130.1(f)

**Specific Purpose:** The specific purpose of the change is to remove the language about the manner of a lighting control in interaction with other lighting controls - they are not necessary given there are already requirements in 130.1 and 110.9 about mandatory indoor lighting controls. Still, the controls interactions language of automatic daylighting controls is retained and moved to the daylighting section (the daylight responsive section), and the requirements about occupancy sensing controls as permitted to be used in the space-conditioning systems are retained and kept in the section.

The specific change is to delete Section 130.1(f) except Section 130.1(f)9 and to rephrase the section title to "Occupancy Sensing Controls Interactions with Space-conditioning Systems". The numbering of the subsection is also removed as it is not needed.

**Necessity:** This change to delete a set of code language that serve as clarifications for lighting controls interactions is necessary to remove redundancy to the requirements already in Section 130.1 and 110.9 about lighting controls.

The changes are reasonably necessary to ensure and improve general clarity and internal consistency of the Energy Code.

**Section:** Table 130.1-A

**Specific Purpose:** The proposed change is to delete Table 130.1-A. The multilevel lighting controls requirements are specified in the body of Section 130.1(b) and 130.1-A is no longer needed to repeat the requirements.

**Necessity:** The change to delete Table 130.1-A is reasonably necessary to provide more concise language that can be easier to read and are less burdensome to comprehend.

**Section:** Exception 8 to 130.2(b)

**Specific Purpose:** The specific purpose of the change is to add a new exception for luminaires that qualify as exceptions in Part 11 of Title 24 and in Section 140.7(a). This is to harmonize the exceptions of the two codes, Part 6 and Part 11 of Title 24.

**Necessity:** This change to add a new exception for luminaires that qualify as exceptions is necessary to harmonize between Part 6 and Part 11 of Title 24 for the backlight, uplight and glare requirements for outdoor luminaires.

The changes are 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** 130.2(c)2

**Specific Purpose:** The specific purpose of the change is to clarify the outdoor lighting power reduction level of the automatic scheduling controls requirements. The change is to add "partially" to the phrase "reducing the outdoor lighting power" and to revise the phrase "by at least 50 percent and no more than 90 percent" as "by 50 to 90 percent".

**Necessity:** This change to clarify the outdoor lighting power reduction level could help code users to comprehend the outdoor lighting power reduction level required for the

automatic scheduling controls requirements and to avoid confusions of the phrase “no more than 90 percent” in the 2022 Energy Code.

The changes are 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:** 130.2(c)3A

**Purpose:** The specific purpose of the change is to consolidate the subsection i within Section 130.2(c)3A as one article of Section 130.2(c)3A. The change is to add the outdoor locations (including general hardscape, parking lots, and outdoor canopies, outdoor sales lots, vehicle service station hardscape, service station canopies, sales canopies, and non-sales canopies) required for motion sensing controls to Section 130.2(c)3 and to add the phrase “and for which the bottom of the luminaire is mounted 24 feet above grade or lower”.

The other change to the section is to delete the permissible code language about motion sensing controls may be installed in combination with other outdoor lighting controls. The change to delete the permissible requirement does not change other mandatory requirements of the section.

**Necessity:** The change to consolidate the subsection i within Section 130.2(c)3A and to add the list of outdoor locations required for motion sensing controls is to produce a code with more concise language so that the code is easier to navigate and comprehend.

The change to delete the permissible code language are reasonably necessary to ensure conciseness and improve clarity of the Energy Code.

The changes are 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** 130.2(c)3Aii

**Purpose:** The specific purpose of the change is to repeal the motion sensing controls requirement of bilaterally symmetric outdoor wall mounted luminaires (“wall packs”) providing building façade, ornamental hardscape or outdoor dining. The change is to delete Section 130.2(c)3Aii and to add “luminaires providing lighting for building façade, ornamental hardscape or outdoor dining” to Exception 2 to Section 130.2(c)3.

The change is to delete the permissible requirement about motion sensing controls does not change other mandatory requirements of the section and provide a more concise code language for code users to comprehend.

**Necessity:** The change to repeal the motion sensing controls requirement of bilaterally symmetric outdoor wall mounted luminaires (“wall packs”) providing building façade, ornamental hardscape or outdoor dining is to amend the situation where motion sensing controls are inappropriate for the lighting applications of façade lighting, ornamental hardscape lighting and outdoor dining lighting.

The changes are necessary as luminaires providing lighting for building façade, ornamental hardscape or outdoor dining are different from wall pack luminaires for

illuminating building edge parking, walkways, building perimeter identification, entry and exit and security.

Wall pack luminaires is described as “lighting equipment that is typically attached to a building wall or other vertical exterior surface and that provides illumination for building edge parking, walkways, building perimeter identification, entry and exit and security”. (“BBA High Efficiency Wall Pack Lighting Specification & Guidance”, A Better Buildings Alliance (BBA) Project, page 1.) (Link: <https://betterbuildingsolutioncenter.energy.gov/sites/default/files/attachments/high-efficiency-wall-pack-specification.pdf> )

Luminaires providing lighting for building facades serve both functionally and decoratively to aim at the façade and to illuminate the façade without obstruction or interference. As such, façade luminaires are different from wall pack luminaires. Ornamental hardscape lighting is not wall packs and ornamental hardscape lighting is defined in the Energy Code as lighting and luminaires installed outdoor and are rated 50 watts or less that are post-top luminaires, lanterns, pendant luminaires, chandeliers, and marquee lighting.

Luminaires providing lighting for outdoor dining serve the outdoor eatery and associated hospitality activities and the luminaires does not serve the same purpose as wall pack luminaires provided, including illumination for parking, walkways, perimeter, identification entry and exit security.

The changes are 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:** 130.2(c)3B

**Purpose:** The specific purpose of the change is to clarify the outdoor lighting power reduction level of the motion sensing controls requirements. The change to Section 130.2(c)3B is to add “partially” to the phrase “reducing the outdoor lighting power” and to revise the phrase “at least 50 percent and no more than 90 percent” as “50 to 90 percent”.

**Necessity:** The change to clarify the outdoor lighting power reduction level could help code users to comprehend the outdoor lighting power reduction level required for the automatic scheduling controls requirements and to avoid confusions of the phrase “no more than 90 percent” in the 2022 Energy Code. The change is necessary to produce a code language easy to read and comprehend.

**Section:** 130.2(c)3 - Exception 2 to 130.2(c)3

**Purpose:** The change is to add “luminaires providing lighting for building façade, ornamental hardscape or outdoor dining” to Exception 2 to Section 130.2(c)3.

**Necessity:** The changes are necessary as luminaires providing lighting for building façade, ornamental hardscape or outdoor dining are different from wall pack luminaires for illuminating building edge parking, walkways, building perimeter identification, entry and exit and security.

The changes are 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 130.4(a)**

**Specific Purpose:** The specific purpose of the change is to add “Section 120.6(h)5B” for the indoor and outdoor lighting controls serving the building, area or site to comply with the section and be certified as meeting the acceptance requirements specified by the Reference Nonresidential Appendix NA7.6 and NA7.8.

**Necessity:** The proposed change to add “Section 120.6(h)5B” is necessary to retain the requirements of Section 120.6(h)5B for CEH horticultural lighting that time-switch lighting controls to comply with Section 130.4(a)4. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section: 130.5(d)2**

**Specific Purpose:** The specific purpose of the change is to clarify the placement of controlled receptacle and uncontrolled receptacle at the same location. The specific change is to replace the word “splitwired” with “multiple” in the phrase so that the phrase reads “multiple receptacle”. The term “multiple receptacle” is defined in California Electrical Code, whereas the term “splitwired receptacle” is not.

**Necessity:** The proposed change of using the term “multiple receptacle” is to avoid any confusions of the term, “splitwired receptacle”. The term “multiple receptacle” is defined in the California Electrical Code as two or more contact devices on the same yoke or strap, and the term is a more accurate term to be used in Section 130.5(d)2 for the scenario where there are two contact devices. The proposed change is also reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code and to ensure and improve the consistency of the Energy Code.

**Section: 130.5(d)3**

**Specific Purpose:** The specific purpose of the change is to delete the word “durable” from the part of the marking requirements of controlled receptacle.

There is no other requirement about the “durable marking requirement of controlled receptacles in the Energy Code.

**Necessity:** The California Electrical Code requires controlled receptacles to be permanently marked, and aligning with the requirements of California Electrical Code that controlled receptacles should be permanently marked with the symbol and the word as specified in the Electrical Code. The change is necessary to ensure the Energy Code and the Electrical Code are in harmony on the marking requirement of controlled receptacles. The proposed change is reasonably necessary to ensure and improve the consistency of the Energy Code with other provisions of law.

The proposed change to repeal part of the marking requirements of controlled receptacles is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 130.5(d)4

**Specific Purpose:** The specific purpose of the change is to revise the time-out period of the controlled receptacle controls from “30 minutes” with ‘20 minutes”. The change is to align the time-out period to switching off the controlled receptacle in hotel and motel guest rooms during vacancy to the time-out period of occupant sensing controls specified in Section 110.9(b)4.

**Necessity:** The proposed change to revise the time-out period of the controlled receptacle requirements is to align the time-out period to switching off the controlled receptacle in hotel and motel guest rooms during vacancy to the time-out period of occupant sensing controls specified in Section 110.9(b)4. 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:** 130.5(d)

**Specific Purpose:** The specific purpose of the change is to remove the word “note” and move the requirement stating that plug-in strips and plug-in devices cannot be used to comply with the requirements of Section 130.5(d) to the beginning of Section 130.5(d).

**Necessity:** The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 140.1

**Specific Purpose:** The specific purpose of these changes is to clarify that energy budgets for nonresidential buildings are now expressed in terms of Long-Term System Costs in section 140.1(a). Obsolete language stating that energy budgets are expressed in Time Dependent Evaluation and Energy Design Ratings is deleted. Inaccurate sections 140.1(b) and 140.1(c) indicating that energy budgets are separately established for the standard design building and the proposed building are eliminated. Explanation of how the energy budget is calculated for the standard design building using Commission-certified compliance software is stated clearly and succinctly in section 140.1, and the redundant section 140.1(c) is eliminated.

**Necessity:** These changes are necessary to update the new methods for how the energy budget is to be calculated and provide the terms to be used for establishing energy budgets. These changes align with language that has the same purpose in sections 140.1, 150.1(b) and 170.1.

**Section:** Exception 1 and 2 to 140.3(a)1Aia

**Purpose:** The specific purpose of this change is to clarify that when meeting Exception 1 or Exception 2 then the user is not required to comply with Section 140.3(a)1Aia. Previous language was deleted since it would otherwise be redundant.

**Necessity:** This change is necessary to ensure the exceptions in this section are clear and unambiguous to readers. This change improves the general clarity and internal consistency of the Energy Code by adding explicit language of what is “not required to comply with” Section 140.3(a)1Aia and thus deleting the previous language that had similar intent, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** Exception to Section 140.3(a)5A

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 1 to Section 140.3(a)5B

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 2 to Section 140.3(a)5C and Exception 1 to Section 140.3(a)6B

**Purpose:** The specific purpose of this change is to correct a misspelling of the word from “lower-rate“ to lower rated.”

**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:** Exception 3 to Section 140.3(a)5C

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed

revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 3 to Section 140.3(a)5D

**Purpose:** The specific purpose of this change is to correct a misspelling of the word from “higher rate“ to “higher rated.”

**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:** Exception 4 to Section 140.3(a)5D

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 2 to Section 140.3(a)6A

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 2 to Section 140.3(a)6B

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 2 to Section 140.3(a)6D

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 2 to Section 140.3(a)6C

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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:** Exception 2 to Section 140.3(a)6E

**Purpose:** The specific purpose of this change is to update the section reference. The 2022 Energy Code correctly references Section 120.6(h)4, but with the proposed revision to the 2025 Energy Code this language has moved, and the correct reference is now Section 120.6(h)3.

**Necessity:** This change is necessary to ensure that correct section is referenced within the Energy Code for conditioned greenhouse building envelope. 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 140.3-B Roofs/ Ceilings

**Purpose:** The specific purpose of these changes is to increase the energy efficiency of the building's exterior walls by reducing the prescriptive U-factors of *Metal Building* and *Wood Framed and Other*, roofs/ceilings. A more efficient building envelope results in less energy being consumed by space conditioning systems, which leads to energy savings and increased energy efficiency.

**Necessity:** The proposed modifications aim to enhance the energy efficiency of roofs/ceilings in newly constructed nonresidential buildings while simultaneously demonstrating cost savings for the building owner. These adjustments align with the mandated cost-effective building design standards outlined in the California Public Resources Code, specifically Sections 25213 and 25402.

**Section:** Table 140.3-B Walls.

**Purpose:** The specific purpose of these changes is to increase the energy efficiency of the building's exterior walls by reducing the prescriptive U-factors of Metal Building, Mass Light, Mass Heavy, and Wood Framed and Other, exterior walls. A more efficient building envelope results in less energy being consumed by space conditioning systems, which leads to energy savings and increased energy efficiency.

**Necessity:** The proposed modifications aim to enhance the energy efficiency of walls in newly constructed nonresidential buildings while simultaneously demonstrating cost savings for the building owner. These adjustments align with the mandated cost-effective building design standards outlined in the California Public Resources Code, specifically Sections 25213 and 25402.

**Section:** Exception 1 to Section 140.3(c)

**Purpose:** The specific purpose of this change is to add a missing Oxford comma.

**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:** Exception to Section 140.3(d)2H

**Purpose:** The specific purpose of this change is to add a missing Oxford comma.

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

**Purpose:** The specific purpose of this change is to add a missing Oxford comma.

**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:** 140.4(a)2E, F, and G

**Purpose:** The specific purpose of this change is to add a missing Oxford comma.

**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:** Exception 1 to Section 140.4(a)2

**Purpose:** The purpose of deleting the exception to Section 140.4(a)2, which pertains to systems utilizing recovered heat for space heating, is to ensure that all applicable systems adhere to the new requirement for mechanical heat recovery Section 140.4(r).

**Necessity:** Deleting the exception to Section 140.4(a)2, specifically concerning systems utilizing recovered heat for space heating prioritizes the optimization of energy usage in space heating systems that implement mechanical heat recovery. This 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:** 140.4(a)3

**Purpose:** The purpose of adding the section titled " Multizone zone space-conditioning system types " to Title 24, Part 6 is to establish specific and tailored requirements for space conditioning systems in office buildings and school buildings not otherwise covered by Section 140.4(a)2.

**Necessity:** This is necessary to address the energy and operational requirements inherent in office and school buildings and to establish clear, targeted requirements for these building types. Which are specified in more detail below.

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

**Purpose:** The inclusion of specific requirements for space conditioning systems in office buildings serves the purpose of advancing energy efficiency and occupant comfort. The emphasis is on system features such as variable refrigerant flow, dedicated outdoor air systems, and heat recovery systems enhancing both energy efficiency and indoor air quality. Additionally, the inclusion of demand-controlled ventilation (DCV) and parallel fan powered terminal units in specific climate zones further contributes to the overall goal of reducing energy consumption and promoting sustainable practices in office buildings.

**Necessity:** The proposed additions are necessary to provide a clear and standardized framework for compliance. The California prototypical medium office building adhere to standards distinct from those outlined in 140.4(a)2 due to its unique operational and construction requirements. A medium office has features outlined in the Energy Code that defines the building envelope, lighting systems, systems, and other energy-consuming components separate from those outlined in 140.4(a)2. These adjustments align with the mandated cost-effective building design standards outlined in the California Public Resources Code, specifically Sections 25213 and 25402

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

**Purpose:** Purpose is to establish a purposeful and tailored approach to space conditioning systems, recognizing the unique requirements of educational facilities by prescriptively specifying the use of heating through a hot water loop served by an Air-to-Water Heat Pump (AWHP), compliant with Section 140.4(a)3C.

**Necessity:** This language is necessary to describe a reasonable space heating system for use in large schools and buildings. The use of 4-pipe fan coil systems for hydronic heating provides flexibility, control, and has been found by staff to be cost effective. These hydronic systems provide a versatile solution that can adapt to the requirements of different zones within a large school building. The proposed additions are necessary to provide a clear and standardized framework for compliance. The documents relied upon for this rulemaking show the proposed efficiency standards to be technically feasible for buildings in California, cost effective where they are proposed to be required, and likely to save significant energy on an annual statewide basis.

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

**Purpose:** The purpose of stipulating a minimum heating Coefficient of Performance (COP) at specific outdoor temperatures is to mandate the use of AWHPs that demonstrate high efficiency in colder conditions, contributing to reduced energy consumption and operational costs. The requirement to maintain the water temperature above the hot water loop's design supply temperature will ensure effectiveness of the heating system while prioritizing occupant comfort. These regulations establish a comprehensive and efficient framework for AWHP space-heating hot water loops, promoting energy conservation, sustainability, and the reliable operation of heating systems.

**Necessity:** The necessity for these regulations is to provide a clear, standardized, and efficient framework for AWHP space-heating hot water loops. Reducing the energy usage of space heating systems will reduce excessive energy use as directed by California Public Resources Code 25213 and 25402.

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

**Purpose:** The purpose of this section is to establish energy-efficient standards for fan systems in office and school buildings served by multi-zone space-conditioning systems. By imposing a maximum power consumption limit of 0.35 W/cfm at their design airflow rate, this aims to promote the use of technologically advanced, low-energy-consuming fans. The requirement for a minimum of three different speeds, as well as the ability to turn off when there is no heating or cooling demand in the space is intended to enhance user flexibility and comfort, allowing for tailored ventilation solutions.

**Necessity:** The necessity for the regulations pertaining to indoor fans establishes a stringent energy efficiency standard and promote sustainable practices in building ventilation systems. There exists a risk of varying energy consumption levels and suboptimal performance among indoor fan systems, potentially leading to unnecessary energy expenditures and environmental impacts. The mandated limit of 0.35 W/cfm at the design airflow rate is essential to ensure that indoor fans adhere to energy-efficient parameters, contributing to reduced overall energy consumption within buildings.

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

**Purpose:** The purpose of this requirement is to clarify that space conditioning systems subject to this section must comply with Section 140.4(p) and 140.4(q) emphasizing the importance of aligning Dedicated Outdoor Air Systems (DOAS) with comprehensive guidelines, consistency, and effectiveness in outdoor air management. The incorporation of heat recovery systems supports the overarching goal of energy conservation by capturing and repurposing energy that would otherwise be wasted.

**Necessity:** The necessity for the regulations governing DOAS within Section 140.4 is critical to standardize and optimize the performance of these systems. This section establishes a clear and standardized guideline for DOAS in this system with AWHP, to ensure compliance with energy efficiency standards contribute to the objectives of energy efficiency.

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

**Purpose:** The purpose of the exception to Section 140.4(a)3E is to provide specific conditions under which deviations from the standard design requirements are permitted. This provision stipulates that in such scenarios, Dedicated Outdoor Air System (DOAS) heating and cooling functionalities must be facilitated through heat pump coils.

**Necessity:** The necessity for this exception is to ensure that alternative design configurations adhere to recognized standards, thereby guaranteeing optimal energy performance and operational reliability. 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:** Section 140.4(b)3A, Ai, and Aii

**Purpose:** The purpose of this change is to add an alternative source of outdoor design condition from ASHRAE Handbook Equipment Volume, Applications Volume and Fundamental Volume. ASHRAE Handbook is already used for indoor design conditions under Section 140.4(b)2A. As part of this addition, the term 99.0 percent Heating Dry Bulb is introduced as an alternative to Heating Winter Median of Extreme. This change aligns with similar changes in Sections 150.0(h)2B and 160.3(b)2.

**Necessity:** The necessity for this exception is to increase flexibility in mechanical system design by allowing commonly used design condition from the ASHRAE Handbook. The addition of “99.0 percent Heating Dry Bulb” is a commonly used industry term in the ASHRAE handbook to calculate heating load. 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:** EXCEPTION to 140.4(c)1

**Purpose:** The purpose of this exception is to clarify that the fan power referenced in 140.4(c) needs to meet the requirements of 140.4(a)3.

**Necessity:** The necessity for this change is to clarify that fan power budget applies to 140.4(a)3 and establish clear, standardized, and industry-vetted guidelines for the

control sequences of variable air volume systems. This ensures that these systems operate efficiently, aligning with recognized best practices and contributing significantly to the broader objectives of energy conservation and efficiency.

**Section:** 140.4(c)2Bi-ii

**Purpose:** The changes made to this section included breaking section 140.4(c)2B into two subsections (i. and ii.) to further assist comprehension of the relevant standards. The specific purpose for the removal of the example and instead include a ASHRAE Guideline 36 compliance requirement for VAV system.

static pressure setpoint reset control in subsection ii., is to provide readers with a specific reference they can rely upon when configuring these systems.

**Necessity:** These changes are necessary to establish clear, standardized, and industry-vetted guidelines for the control sequences of variable air volume systems. This ensures that these systems operate efficiently, aligning with recognized best practices and contributing significantly to the broader objectives of energy conservation and efficiency.

**Section:** 140.4(d)2Ai

**Purpose:** The specific purpose of this change is to add a missing Oxford comma.

**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:** 140.4(d)2Av

**Specific Purpose:** The specific purpose of the addition is to include a ASHRAE Guideline 36 compliance requirement for space-conditioning zones with Direct Digital Controls (DDC).

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective HVAC controls. The necessity for this change is to establish clear, standardized, and industry-vetted guidelines for the control sequences of space conditioning zones with DDC. This ensures that these systems operate efficiently, aligning with recognized best practices and contributing significantly to the broader objectives of energy conservation and efficiency.

**Section:** Exception 3 to Section 140.4(d)

**Purpose:** The purpose of this change is to modify terminology and eliminate the use of the term "exempt" for clarity without changing the intent of the Energy Code. The Energy Code establishes unique requirements for Covered Process loads as defined in Section 100.1. Exception 3 addresses process loads that are not covered process loads; using the term non-covered process loads is the simplest and least ambiguous way to convey the intent of the exception. When particular requirements in the Energy Code are not applicable to particular construction situations or equipment for specific reasons, the Energy Code does provide exceptions that indicate compliance is not required in that instance.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity, provide consistency with other exceptions in the Energy Code.

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

**Purpose:** The specific purpose of this change is to add a missing Oxford comma.

**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:** 140.4(e)2D

**Specific Purpose:** The specific purpose of this addition is to include the ASHRAE Guideline 36 compliance requirement for economizers when they are controlled by a direct digital control (DDC). Additionally, format changes and related references are made to adjust for this addition in the subsequent sections, where previous section D becomes E, and the previous section E becomes F.

**Necessity:** This addition is necessary to increase energy efficiency via cost-effective HVAC controls by standardizing economizer controls predetermined strategies within Guideline 36. The proposed change addresses the complexity of economizers and ensures that their control sequences align with industry-recognized best practices outlined in ASHRAE Guideline 36. This contributes to overall energy conservation and aligns HVAC economizer systems with the latest advancements and recommended practices in the industry.

**Section:** 140.4(f)3

**Specific Purpose:** The specific purpose of the addition is to include the ASHRAE Guideline 36 compliance requirement for supply air temperature reset controls in buildings with automated Direct Digital Controls (DDC).

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective HVAC controls. The necessity for change is to establish clear, standardized, and industry-vetted guidelines for the control sequences of supply temperature reset controls in systems with DDC. This ensures that these systems operate efficiently, aligning with recognized best practices and contributing significantly to the broader objectives of energy conservation and efficiency.

**Section:** Section 140.4(h)5, Table 140.4H-2, and Exception 2 to Section 140.4(h)5

**Specific Purpose:** These proposed changes update the cooling tower efficiency prescriptive requirements and include a new table, Table 140.4 H-2, based on climate zone. It also removes exceptions for climate zone 1 and 16 previously provided in exception 2.

**Necessity:** The efficiency of cooling towers is now based on climate zone, where areas with higher cooling needs are subject to higher efficiencies. The higher cooling loads make it more economically feasible for higher efficiency to be installed. Although the exception for climate zones were removed, the minimum efficiency actually remains the same at the minimum mandatory efficiency of the equipment. Reducing the energy usage of cooling towers will reduce excessive energy use as directed by California Public Resources Code 25213 and 25402.

**Section:** 140.4(p)

**Purpose:** The specific purpose of this change is to add a missing Oxford comma.

**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:** Exception 1 and 2 to Section 140.4(q)1

**Purpose:** The purpose of this change is to modify terminology for clarity, locate exceptions as close as possible to the requirement that is the subject of the exception, and avoid the use of the term "exempt" Exception 1 and 2 are providing exceptions to one specific provision of Section 140.4(q), namely Section 140.4(q)1. Without the change these exceptions currently are designated as Exceptions 4 and 5 to the global Section 140.4(q). The exceptions need to be moved to follow the directly applicable provision (similar to Exception to Section 140.4(q)2). As a result, the current Exception 6 and Exception 7 to Section 140.4(q) are renumbered to be Exceptions 4 and 5 respectively, to Section 140.4(q).

When particular requirements in the Energy Code are not applicable to particular construction situations or equipment for specific reasons, the Energy Code does provide exceptions that indicate compliance is not required in that instance. Exceptions 1 and 2 are rewritten to avoid the use of the term "exempt" and to simply and unambiguously state that provisions of Section 140.4(q)1 are not required for specific climate zones.

**Necessity:** These changes are necessary to ensure clarity and avoid ambiguity, provide consistency with other exceptions in the Energy Code.

**Section:** 140.4(r)

**Specific Purpose:** The specific purpose of this addition is to include requirements for HVAC systems with DDC that align with use of ASHRAE Guideline 36 programming libraries. HVAC systems with DDC shall use controller logic originating from a programming library based on sequences of operation from ASHRAE Guideline 36.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective HVAC controls. The necessity for change is to establish clear, standardized, and industry-vetted guidelines for the control sequences in systems with DDC. This ensures that these systems operate efficiently, aligning with recognized best practices and contributing significantly to the broader objectives of energy conservation and efficiency.

**Section:** Exception 1 to Section 140.4(r)

**Purpose:** The purpose of this exception is to allow for adaptation and customization of DDC program logic not provided by ASHRAE Guideline 36.

**Necessity:** The necessity for Exception 1 to Section 140.4(r) is to address diverse building applications that may require tailored adaptations beyond the standardized sequences outlined in ASHRAE Guideline 36. This exception is essential to accommodate the inherent variability in application-specific operations, allowing for the modification of logic derived from certified programming libraries to meet unique operational needs.

**Section:** Exception 2 to Section 140.4(r)

**Purpose:** Provides an exception to healthcare facilities which is not within the scope of ASHRAE Guideline 36.

**Necessity:** Exception 2 to Section 140.4(r) is necessary to address the unique and critical operational requirements of systems serving healthcare facilities not outlined in ASHRAE Guideline 36.

**Section:** Exception 1 to Section 140.4(r)3

**Purpose:** This addition provides an exception for non-programmable (configurable-only) controllers designated for zone terminal units. This exception is designed to address the specific operational characteristics of non-programmable controllers by mandating adherence to applicable ASHRAE Guideline 36 zone sequences, as referenced in JA18 Table 18.3-1, while simultaneously excepting them from the programming library requirement outlined in Section 140.4(r)3.

**Necessity:** The necessity for Exception 3 is to align regulations with the functional limitations of non-programmable controllers for zone terminal units. This exception ensures compliance with industry guidelines, acknowledges the relevance of standardized zone sequences, and adopts a practical approach that facilitates the effective utilization of non-programmable controllers within their designated scope of operation.

**Section:** 140.4(s)

**Specific Purpose:** The specific purpose of this change is to add prescriptive requirements for Mechanical Heat Recovery that have simultaneous heating and cooling loads for new buildings to recover energy to be used elsewhere in the building and prevent wasteful energy. Exception 1 to Section 140.4(s)1 applies to laboratory exhaust systems already meeting covered process requirements for heat recovery and Exception 2 for 140.4(s)1 is for climate zone 15 where it was not found to be cost effective to incorporate these heat recovery standards. Global Exception 1 to Section 140.1(s) does not require compliance for computer rooms that already incorporate large amounts of heat recovery.

**Necessity:** For large buildings that have large simultaneous loads, mechanical heat recovery has been found to be cost effective. By requiring new buildings with large loads to recover heat, it reduces wasteful energy and recoups useful energy for use in other parts of the building. These changes are necessary to increase energy efficiency via cost effective building design standards as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 140.4(s)2

**Specific Purpose:** The specific purpose of this change is to add prescriptive requirements for Mechanical Heat Recovery that have simultaneous heating and cooling loads to include heat recovery for service water heating. Another option is added here to use recouped energy to heat service hot water instead of space heating in the previous section.

**Necessity:** For large buildings that have large simultaneous loads, mechanical heat recovery has been found to be cost effective in recouping energy to be used in service hot water. In addition, when the building also has a certain capacity of service water

heating, using heat removed from a space to heat service hot water has been found to be cost effective. These changes are thus necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402

**Section Exception to Section 140.6(a)**

**Specific Purpose:** This proposed change deletes the Exception to Section 140.6(a) for portable lighting in office areas as there is already a provision in Table 140.6-C for portable lighting in offices.

The change to delete the Exception for portable lighting for office areas is to avoid the wasteful allowance of portable lighting for office areas.

**Necessity:** The proposed change to delete the exception of up to 0.3 watts of lighting power of portable lighting in offices – the Exception in Section 140.6(a) – is to correct the situation of double allowances of portable lighting power in offices – one in the Exception and another one in Table 140.6-C of the “Area Category Method”. The change is to ensure the allowed portable lighting power for office areas is accounted consistently and the lighting power is not allotted more than one instance for the same portable lighting. There is already a provision in Table 140.6-C for portable lighting power in office areas. The existence of both provisions - one in Table 140.6-C and another thru the Exception for portable lighting – are duplicates to one another. Continued use of the exception would be a wasteful allowance as it would allow the power usage to be counted twice in the calculation of indoor lighting power and thus not otherwise align with energy efficient mandates.

**Section: 140.6(a)2lv**

**Specific Purpose:** This proposed change clarifies the Power Adjustment Factors (PAF) requirements in Section 140.6(a)2. The change adds a new subsection of Section 140.6(a)2l to require that occupancy sensor control zones in offices greater than 250 square feet be shown on plans. Occupancy sensor control zone information is essential information to communicate across various parties including designers, installers, building officials and acceptance testing agents to show compliance to the occupancy sensing controls in offices greater than 250 square feet.

**Necessity:** The change to require occupancy sensor zones to be shown on plans is to ensure that this essential information is documented to show compliance with the requirements and can thus be readily communicated across various parties including designers, installers, building officials and acceptance testing agents and the occupancy sensing controls.

**Section: 140.6(a)2Kii**

**Specific Purpose:** This change clarifies the PAF requirements for the demand responsive controls receiving the PAF. The change updates, this section’s reference of the illuminance uniformity requirement to Section 130.1(b) (previously it was Table

130.1-A) and adds a statement in Table 140.6-A, line 5 clarifying that the PAF are not available to demand responsive controls that are mandated under Section 110.12(c).

**Necessity:**

The change to clarify the PAF requirements for the demand responsive controls are to ensure the incentivized PAF provisions are allowed for the proper demand responsive controls – those demand responsive controls not mandated under Section 110.12(c). 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:** 140.6(a)3O

**Purpose:** The change here removes repetitive language that already exists within the scope of the code.

**Necessity:** These changes are essential to make sure that the provisions in the subsection are clear and unambiguous.

**Section:** 140.6(a), 140.6(b), 140.6(c) and Tables 140.6-D through G

**Specific Purpose:** The purpose of these changes is to remove the “Tailored Method” as well as any associated language from Section 140.6, including revising related references, and deleting Section 140.6(a)4C, 140.6(b)3C, 140.6(b)3D, 140.6(b)4B, 140.6(c)3 and Table 140.6-D thru G completely as these sections and tables are directly related to the “Tailored Method”. This change also includes modifications and removal of “Tailored Method” associated language in 140.6(b)3B and 140.6(c)2Gv.

**Necessity:** The proposed change to remove the “Tailored Method” is to provide a simpler compliance approach through the “Area Category Method” with similar additional lighting power allowances for specific lighting application that requires additional lighting.

The “Area Category Method”, with Table 140.6-C (and additional modifications explained further below), is a much more straight forward and less of a cumbersome compliance methodology compared to the “Tailored Method”, which required looking up multiple tables, Table 140.6-D, E, F, and G, for the tailored lighting calculation process. With the removal of the “Tailored Method”, it is no longer necessary to have Table 140.6-D, E, F, and G which holds related information.

**Section:** Section 140.6(a)2, Tables 140.6-A and B

**Specific Purpose:** The proposed change here includes moving Table 140.6-A and Table 140.6-B to the location immediately succeeding the relevant code language mentioning the table. Additional small modifications were made within Table 140.6-A that moved previous points a., b., and c., to the bottom of the Table instead being presented first. There are also modifications made to line 2 which adds an addition line in the Table.

**Necessity:** The proposed change to move Table 140.6-A and Table 140.6-B succeeding the code language mentioning the table is to allow readers look up them up easier. 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 140.6(b)4**

**Specific Purpose:** The specific change in this section adds “wall display, floor display; task, or very valuable display case” to the list of lighting power allotments that may not be increased or traded off when used under the “Area Category Method”. The other changes remove “and feature” from “display and feature” and make minor formatting changes for clarity.

**Necessity:** The change to add “wall display, floor display; task, or very valuable display case” is necessary to align with what is specified in Table 140.6-C for the qualified lighting systems. The change to specify to remove “and feature” from “display and feature” is necessary to align with what is specified in Table 140.6-C for display lighting.

#### **Section 140.6(c)2Gviii**

**Specific Purpose:** The specific purpose of this change is to specify and to retain the requirement about floor display lighting in the new subsection that floor display lighting shall not qualify for wall display lighting power allowances.

**Necessity:** The change to specify the requirement that floor display shall not qualify for wall display allowances is necessary so that wall display allowances is used only for wall display lighting. The change is also necessary to retain energy code stringency for floor display lighting, wall display lighting, and the additional lighting power allowance provided under the area category method.

#### **Section 140.6(c)2Gix**

**Specific Purpose:** The specific purpose of this change is to specify and to retain a requirement in the new subsection regarding criteria for wall lighting that can be eligible for wall display lighting allowance. The criteria are the same criteria for wall lighting eligible under the Tailored method for wall lighting.

**Necessity:** The change to specify the qualifying criteria for wall lighting that can be eligible for wall display lighting allowance is necessary so that wall display lighting allowance is used only for qualified wall lighting. The change is also necessary to retain

energy code stringency for wall display lighting and the additional lighting power allowance provided under the area category method.

**Section 140.6(c)2Gx**

**Specific Purpose:** The specific purpose of this change is to include a requirement in the new subsection regarding criteria for wall display lighting that can be eligible for wall display lighting allowance. The other purpose is to specify how to determine the length of display walls and permanent full height interior partitions.

**Necessity:** The change to specify the qualifying criteria for wall display lighting that can be eligible for wall display lighting allowance is necessary so that wall display lighting allowance is used only for qualified wall lighting. The change to specify how to determine the length of display walls and permanent full height interior partitions is necessary so that there is a consistent manner of the determination. The change is also necessary to retain energy code stringency for wall display lighting, and the additional lighting power allowance provided under the area category method.

**Section 140.6(c)2Gxi**

**Specific Purpose:** The specific purpose of this change is to specify how to determine mounting height of the luminaire qualified for additional lighting power allowances in Table 140.6-C.

**Necessity:** The change to specify how to determine mounting height of the luminaire is necessary so that there is a consistent manner of the determination. The change is also necessary to retain energy code stringency for floor display lighting, wall display lighting, and the additional lighting power allowance provided under the area category method.

**Section: TABLE 140.6-C**

**Specific Purpose:** The modifications made to Table 140.6-C retain the additional lighting power allowances of the “Tailored Method” by adding comparable allowances for lighting applications to the “Area Category Method”. This change adds additional lighting power allowances under Table 140.6-C for the following applications:

- convention, conference, multipurpose and meeting area;
- dining area – bar/lounge and fine dining;
- retail sales area – grocery sales; and
- retail sales area –retail merchandise sales.

The additional lighting allowances added to the “qualified lighting systems” column of Table 140.6-C include lighting applications to the following:

- wall display of mounting height less than or equal to 10 feet 6 inches;
- wall display of mounting height between 10 feet 7 inches to 14 feet;
- wall display of mounting height greater than 14 feet;
- floor display of mounting height less than or equal to 10 feet 6 inches;
- floor display of mounting height between 10 feet 7 inches to 14 feet;
- floor display of mounting height greater than 14 feet;
- valuable display case; and

- general lighting in the enclosed space of ceiling height greater than 10 feet.

**Necessity:** The additional lighting power allowances for the applications (functional area types including Convention, Conference, Multipurpose and Meeting Area; Bar/Lounge and Fine Dining Area; Main Entry Lobby; Retail Sales Area of Merchandise Sales; Retail Sales Area of Grocery) are retained and added to the “Area Category Method” as they are the most heavily used for the “Tailored Method” (in accordance to the compliance dataset compiled by a NORESCO team and findings presented on a public workshop held on February 24, 2023). Other function area types (also known as “space function”) are reported to have less than five (5) instances for their usage of “Tailored Method” in the same compliance dataset – with a total of 521 instances of reported usage for “Tailored Method”.

The presentations of the public workshop (“Stakeholder Workshop -Round 2 2023.05.16”) and the compliance dataset findings (page 175 of the docket document) can be found in a docket document (Docket document TN#250676, Docket Number 22-BSTD-01). These modifications simplify the standards required in conjunction with elimination of the “Tailored Method” standards while assuring that there are no compliance gaps in the methodology’s absence.

#### **Section Table 140.6-C**

**Specific Purpose:** The specific purpose of the change is to add a note 3 to Table 140.6-C about MH that it being denoted as the mounting height of the lighting systems.

**Necessity:** The change is necessary to specify the information pertaining to the table in the energy code so that there is a consistent manner of the determination.

#### **Section: Exceptions to Section 140.7(a)**

**Purpose:** The purpose of this change is to use unambiguous language and avoid the use of the term "exempt" for clarity without changing the intent of the Energy Code. When particular requirements in the Energy Code are not applicable to particular construction situations or equipment for specific reasons, the Energy Code does provide exceptions that indicate compliance is not required in that instance. This section has been rewritten to avoid the use of the term "exempt" and to simply and unambiguously state that provisions of Section 140.7(a) are not required for the following exceptions.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity, provide consistency with other exceptions in the Energy Code.

#### **Section Table 140.7-B**

**Specific Purpose:** The specific purpose of the change is to clarify how the additional lighting power allowance of specific applications (outdoor lighting) could be applied to each site or to each specific lighting applications. The change includes adding the following guidance notes to Table 140.7-B for various lighting applications listed in Table 140.7-B.

- “Per application”; or
- “PER SITE: WATTAGE ALLOWANCE PER HARDSCAPE AREA (W/ft<sup>2</sup>). May be used as additional allowance for applicable illuminated hardscape area on the

site.” For lighting applications of security cameras and special security lighting for retail parking and pedestrian hardscape.”

**Necessity:** The changes are reasonably necessary to clarify how the additional lighting power allowance for specific applications could be properly applied to the site or to the specific applications. The proposed change once adopted can deliver a code language easier to read and comprehend. 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 140.8(b)**

**Specific Purpose:** The specific purpose of these changes is to remove legacy types of light sources from the list of compliant sign lighting light sources. The change will remove the following light sources from subsection 140.8(b)1,2,4 and 6:

- high pressure sodium lamps;
- metal halide lamps;
- fluorescent lamps; and
- compact fluorescent lamps.

**Necessity:** The changes are reasonably necessary to update the sign lighting light source requirements in order to reflect the current availability of sign lighting light sources. The removed legacy light sources are no longer being manufactured nor will they be replenished once the current stock runs out. 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:** Exception 2 to Section 140.9(a)1

**Purpose:** Removed the term ‘e.g.’ and preceding language at the end of subsection ii. Also updated the grammatical language for clarity and easy understanding.

**Necessity:** These changes are essential to make sure that the provisions in the subsection are clear, concise, and unambiguous, enabling non-technical readers to easily locate and comprehend the technical requirements. Removing language that may otherwise confuse readers achieves this goal.

**Section:** 140.9(a)3

**Purpose:** Reformatted the word “air” to bold font to complete subject line for the respective regulation.

**Necessity:** The Energy Code follows a specific formatting for subsections. The word “air” was bolded to follow this formatting. This is a non-substantive change made for consistency in the Energy Code formatting.

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

**Specific Purpose:** This change revises the above referenced requirements to add and separate occupied and unoccupied minimum exhaust airflow rate requirements for

laboratory exhaust systems. The proposed minimum rates are based on a set minimum, rates required for safety or accreditation, or rates needed to meet pressurization, whichever is larger. Additionally, airflow reduction requirements will now apply to laboratories that have a minimum ventilation rate of 10 air changes or more.

**Necessity:** Occupied and unoccupied minimum exhaust airflow rates may differ with unoccupied airflow rates typically being lower. The current single minimum airflow rates can result in either occupied or unoccupied periods operating at higher than needed exhaust rates. Identifying minimum occupied and unoccupied exhaust airflow rates ensures that the appropriate airflow rate is used dependent on occupancy condition. Applying the airflow reduction requirements to laboratories with ventilation rates of 10 air changes or more also ensures that a laboratory does not claim a higher ventilation rate to avoid the requirement. These revisions to airflow reduction requirements will reduce excessive energy use as directed by California Public Resources Code 25213 and 25402.

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

**Purpose:** Requirements added to verify the revised airflow reduction requirements.

**Necessity:** New airflow reduction requirements will only result in reduced energy usage if the appropriate airflow is implemented during construction. Verification requirements are included to compare the proposed design airflow rates against the airflow rates implemented in the building project.

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

**Purpose:** Remove exception 1 to 140.9(c)1.

**Necessity:** The exception for lab exhaust systems serving authority having jurisdiction, facility environmental health and safety department, or other applicable codes are now included within the code language under 140.9(c)1Aii and 140.9(c)1Bii. This would make the exception redundant.

**Section:** Section 140.9(c)3

**Specific Purpose:** Extensive edits have been made to the is section. The proposed changes update the outdated 2012 ANSI Z9.5 reference to the current 2022 version. Section 140.9(c)3B adds the option for a laboratory exhaust fan system to meet fan power requirements provided under Section 140.4(c)1A and 140.4(c)1B. Options for wind based and contaminant-based controls were included in revised language. These changes also add an option for simple turndown control systems to existing wind responsive and monitored control systems. Reference ANSI Z9.5 (2022) Appendix 3 for definitions of simple turndown, wind responsive, and monitored control systems are added and specific language that was previously included in the Energy Code was removed as the reader is now pointed to ANSI Z9.5 (2022) Appendix 3.

**Necessity:** Existing code requirements referenced 2012 versions of ANSI Z9.5 and updating to 2022 ANSI Z9.5 will keep California in line with national practices. Similarly, referencing Appendix 3 of ANSI Z9.5 2022 will align CEC simple turndown, wind responsive and monitored control systems with national practices to simplify designs of

laboratory exhaust systems to meet different code requirements. Allowing laboratories to meet fan power requirements under Section 140.4(c)1A and 140.4(c)1B, which typically result in lower fan powers, provides designers with additional flexibility. These revisions to laboratory fan system power consumption provides additional flexibility that will perform equivalent to existing options.

**Section:** Section 140.9(c)5

**Specific Purpose:** These proposed changes add prescriptive requirements to limit space conditioning systems for laboratory spaces in buildings with greater than 20,000 cfm that first cool air at the handler and then reheat air when it reaches the zone.

**Necessity:** A new reheat limitation will prevent excessive use of energy from reheating space conditioning air. Exceptions are provided specifically for systems where humidification can affect laboratory spaces, allowing for cooling and reheating to control humidity. Including reheat limitation requirements will reduce excessive energy use as directed by California Public Resources Code 25213 and 25402.

**Section:** Exceptions 1-4 to Section 140.9(c)5

**Specific Purpose:** Adds exceptions for additions and alterations, specific climate zones, and vivarium spaces. Exceptions provided for specific space uses and to ensure that humidity does not negatively affect the space.

**Necessity:** Exceptions for additions and alterations were provided due to the added costs of replacing existing HVAC equipment to meet requirements in section 140.9(c)5. Exceptions for climate zones were included due to humidity concerns that may arise at these specified conditions specifically allowing for cooling and reheating to control humidity. Exception 4 was included for humidity and safety requirements of the specified laboratory use.

**Section:** Section 140.9(c)6

**Specific Purpose:** The proposed changes add prescriptive requirements for exhaust air heat recovery for laboratory spaces. This includes energy recovery ratio requirements, and system specifics to support disabling of heat recovery when not needed.

**Necessity:** Exhausting air results in energy used to condition this air to the outside environment and additional energy is used in the process of conditioning the makeup air. Including exhaust air heat recovery requirements for laboratory spaces will amend this issue by using some of the energy used to condition the air being ventilated to condition the incoming makeup air. Additionally, requirements for disabling heat recovery will ensure that the exhaust systems continue to operate effectively and safely even when heat recovery is not necessary. Including heat recovery requirements will reduce excessive energy use as directed by California Public Resources Code 25213 and 25402.

**Section:** Exceptions 1-5 to Section 140.9(c)6

**Specific Purpose:** The proposed changes add exceptions for additions and alterations, and specific building conditions to the new exhaust air heat recovery standards mentioned above.

**Necessity:** Exceptions for additions and alterations were provided due to the added costs of replacing existing HVAC equipment to meet requirements in section 140.9(c)6. Exceptions were also provided for conditions where the heat recovery requirements in 140.9(c)6 are not expected to result in sufficient reduction in energy usage for the measure to be cost effective.

**Section:** 140.10(a)

**Specific Purpose:** The purpose of the proposed changes to this section is to clarify and reduce compliance ambiguity by establishing a specific calculation for determining the Photovoltaic System (PV) requirement when solar access roof area (SARA) is limited. The calculation provides separate requirements for buildings with steep-sloped roofs and for buildings with low-sloped roofs. Additionally, other modifications to the section language were made to provide further compliance clarity and/or correct grammatical errors. These additions correct the language in the current Energy Code that does not provide a definitive means to determine the PV requirement.

**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. 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:** 140.10(a)1C

**Specific Purpose:** The proposed changes to the section clarify, make specific, and reduce administrative burden in specific instances where SARA is reduced. This section is clarified and is made more specific by separately addressing compliance with other state building codes as a reason for roof area to not be available, or compliance with local building codes if confirmed by the Executive Director (ED).

**Necessity:** These changes are necessary to improve clarity and specificity and reduce administrative burden. They are needed to make clear that compliance with state building codes would not require ED confirmation, while compliance with local building codes would continue to require ED confirmation.

**Section:** Equation 140.10-A and Table 140.10-A

**Specific Purpose:** The purpose of the proposed changes to the equation and the table is to revise the PV Capacity Factors used in Equation 140.10-A is to establish the size of the PV systems required for the 2025 Energy Code. The PV system size requirements are increased or clarified for building categories for which there are PV requirements in the 2022 Energy Code or are established for the first time for additional building categories. Increased or new PV requirements reduce building energy

consumption, thereby reducing energy bills. The CEC updates the Energy Code on 3-year code cycles to reduce as much energy consumption as possible for the state.

**Necessity:** These changes are necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Section 25402.

**Section:** Section 140.10(a) - Replacement of Exception 5

**Specific Purpose:** The purpose of the proposed change is to provide an exception for nonresidential and hotel/motel tenant spaces in multi-tenant buildings that is appropriate and consistent with the CPUC's Virtual Net Billing Tariff (VNBT) and Net Billing Tariff (NBT) rules. Community solar continues to be an alternative to the on-site PV system requirements of 140.10(a), as described in the exception to 140.1(a).

**Necessity:** This exception is necessary to not require small tenant spaces in nonresidential and hotel/motel that have limited energy consumption loads on their electric utility meter to meet the PV requirements because those situations are unlikely to be feasible or cost effective. These changes are necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy that the CEC determines to be cost effective consistent with California Public Resources Code Sections 25402 and 25402(b)3.

**Section:** 140.10(b)

**Specific Purpose:** The purpose of the proposed changes is to revise the approach to determining the Minimum Rated Useable Energy Capacity using either Equation 140.10-B or 140.10-C, depending on whether or not solar access roof area (SARA) is limited, and the Minimum Power Capacity using Equation 140.10-D. These capacity determinations set the requirements for the size of the battery energy storage system (BESS) required for each building. The energy storage system size requirements are increased or clarified for building categories for which there are PV requirements in the 2022 Energy Code or are established for the first time for additional building categories. Increased or new energy storage system requirements reduce building energy consumption. The section also changes the name to energy storage system from battery storage used in the 2022 Energy Code. As explained previously in this ISOR that term was changed to clarify that an operative system has multiple components not just batteries and to match up with use of the BESS term within the industry.

**Necessity:** These changes are necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Section 25402. Additionally, this new term ensures and improves 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:** Equations 140.10-B, 140.10-C and 140.10-D and Table 140.10-B

**Specific Purpose:** The energy storage system kWh sizing equation 140.10-B and 140.10-C has been updated to be a function of conditioned floor area, the capacity

factor B, which has been updated as required for cost-effectiveness metrics, using Long-term System Cost, in addition to roundtrip efficiency. Equation 140.10-C has been introduced to calculate the energy storage sizing when SARA restricts the PV sizing with which the energy storage system will be matched. For Equation 140.10-D, a factor C was included in the equation for the 2022 Energy Code; that factor was merely the capacity factor, factor B, divided by 4 to capture the expected time (4 hours) for the battery to discharge. The revised equation eliminates factor C and instead is based on factor B expressly divided by 4. That clarifies and eliminates unnecessary complexity in the equation. The number of building categories in table 140.10-B have increased consistent with revised cost-effectiveness analysis. The changes to these equations and tables contribute directly to reducing building energy consumption as explained for the proposed changes to section 140.10(b) above, as well as improving the clarity of the Energy Code.

**Necessity:** These changes are necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Section 25402. Additionally, these changes 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:** Exception 3 to Section 140.10(b)

**Specific Purpose:** The purpose of the change to this exception is to replace the term “battery storage system” with “BESS (Battery Energy Storage System)” as defined in Section 100.1(b). This change is necessary to clarify the requirements for the energy storage system using consistent terminology through the Energy Code.

**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:** Exception 4 to Section 140.10(b)

**Specific Purpose:** The purpose of this change is to be consistent with changes to Table 140.10-B, which has been revised to establish BESS requirements for each building type and climate zone. The revised Table 140.10-B indicates NR (not required) for office and school buildings, which is the same result as the existing exception that “no battery storage system is required for offices, schools”. The revised Table 140-10-B establishes for the first time that BESS requirements will be required for Warehouses. These changes are based on cost effectiveness analysis completed for the 2025 Energy Code.

**Necessity:** This change is necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Section 25402. Additionally, this new term ensures and improves 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:** Exceptions 4 through 6 to Section 141.0(a)

**Specific Purpose:** The purpose of these changes is to eliminate the use of the term "exempt" for clarity without changing the intent of the Energy Code. When particular requirements in the Energy Code are not applicable to particular construction situations or equipment for specific reasons, the Energy Code does provide exceptions that indicate compliance is not required in that instance.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity, provide consistency with other exceptions in the Energy Code.

**Section:** 141.0(b)1E

**Purpose:** The specific purpose of this change is to add a mandatory requirement for exterior windows in altered nonresidential buildings to meet a minimum U-factor of U-0.58.

**Necessity:** This modification is essential to guarantee that exterior windows in existing nonresidential buildings undergoing alterations meet, at a minimum, the performance standards of the original windows. The goal is to prevent excessive or uneconomical energy consumption in the process of enhancing or modifying these windows to maximize building energy efficiency.

**Section:** 141.0(b)2C to 141.0(b)2Ci, 141.0(b)2Cii and 141.0(b)2Ciii

**Purpose:** The purpose of the changes to this section are to ensure that prescriptively installed equipment relies on heat pump technology where feasible and cost effective. 141.0(b)2C was partially moved to a new subsection, 141.0(b)2Ci, and a new 141.0(b)2Cii was created to address the new requirements for new or replacement of single zone packaged rooftop systems with a direct expansion cooling. 141.0(b)2Ciii was added to delineate specific instances where the prescriptive inclusion of an economizer is applicable. This clarifies that single zone system types with a capacity of less than 65,000 Btu/hr are to have economizer and that all single packaged unitary air systems from 54,000 Btu/hr and greater are to include an economizer.

**Necessity:** The proposed new requirement of the standards for new or replacement space conditioning systems for these building types (small schools, small offices, retail and library) to have heat pump technology as the baseline are reasonably necessary to reduce and prevent wasteful, uneconomic, inefficient, and unnecessary consumption of energy by buildings, consistent with the statutory direction in Public Resources Code Section 25402. The documents relied upon for this rulemaking show the proposed efficiency standards to be technically feasible for buildings in California, cost effective where they are proposed to be required, and likely to save significant energy on an annual statewide basis.

**Section:** Exception 1 to 141.0(b)2C

**Specific Purpose:** This exception exempts existing buildings from the heat pump requirements of 140.4(c)2. The exception was deleted, and it was relocated to

Exception 1 to Section 141.0(b)2C. The exception also added an exemption to 140.4(c)3 since they are only applicable to newly constructed buildings.

**Necessity:** The necessity of Exception 1 to Section 141.0(b)2C is to clarify that new or replacement space conditioning systems or components that do not need to comply with requirements of Section 140.4(a)2 and Section 140.4(a)3.

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

**Purpose:** This exception serves to clarify that when an alteration surpasses the capacity of the existing main service panel or service transformer, the provisions outlined in Section 141.0(b)2Cii no longer apply.

**Necessity:** The necessity of this is to address instances where the scale of the alteration necessitates distinct considerations, ensuring that regulatory measures align with the practical constraints imposed by the capacity limits of the electrical infrastructure.

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

**Purpose:** The purpose of this table is to outline specific requirements and specifications for different types of HVAC systems based on the type of building and its climate zone. The table provides information on the recommended configurations for air conditioning systems with various. The table is organized by different building types (Retail and grocery, School, Office, financial institution, Library) and climate zones (CZ 1-15).

**Necessity:** The necessity of this table is to provide a reference guide for selecting appropriate HVAC configurations tailored to specific building types and climate zones, considering factors like energy efficiency, ventilation control, and heating capabilities. It aids in ensuring that HVAC systems are designed and installed to meet the unique needs of different buildings in CA climate zones as in 141.0(b)2Cii.

**Section:** Exception 3 to Section 141.0(b)2C

**Specific Purpose:** The specific purpose of this addition is to provide an exception which makes clear that interlocks are not required on existing windows that did not previously have interlocks when replacing the space conditioning system.

**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, this new term ensures and improves 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:** Exception 3 to Section 141.0(b)2C (removed)

**Specific Purpose:** Removed the exception 3 relating to single package air-cooled commercial unitary air conditioner or heat pumps with capacity less than 54,000 btu/h. Section 141.0(b)2Ciii clarifies that single zone system types with a capacity of less than

65,000 Btu/hr are to have economizer and that all single packaged unitary air systems from 54,000 Btu/hr and greater are to include an economizer.

**Necessity:** The change is necessary to clearly state what type of system the exception applies to. 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:** Exception 5 to Section 141.0(b)2C

**Specific Purpose:** The specific purpose of this addition is to include an exception to ensure that sections 140.4(c)2Bii, 140.4(d)2Av, 140.4(e)2D, and 140.4(f)3, and 140.4(r) do not apply to alterations unless the space-conditioning systems are new or replacements.

**Necessity:** This change is needed to ensure that when HVAC systems are altered in existing nonresidential buildings, sections of the Energy Code that do not apply are listed for clarity.

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

**Purpose:** The purpose of this change is to delete field verification and diagnostic testing and replace it with acceptance testing.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires nonresidential duct leakage test to first be performed by a certified mechanical ATT and then field verified by an ECC-Rater (formerly referred to as a HERS rater). The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the ECC program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in nonresidential buildings is under the scope of the ATTCP program. Removing the field verification and diagnostic requirement will reduce confusion moving forward on who needs to perform the nonresidential duct leakage test.

**Section:** Exception 2 to Section 141.0(b)2Dii

**Specific Purpose:** The purpose of this change is to use clearer and unambiguous language and avoid the use of the term "exempt". This exception is rewritten to avoid the use of the term "exempt" and to simply and unambiguously state the requirements that are not required to comply with this section.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity and provide consistency with other exceptions in the Energy Code.

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

**Specific Purpose:** The purpose of this change is to use clearer and unambiguous language and avoid the use of the term "exempt". This exception is rewritten to avoid

the use of the term "exempt" and to simply and unambiguously state the requirements that are not required to comply with Section 141.0(b)2Di or Section 141.0(b)2Dii.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity and provide consistency with other exceptions in the Energy Code.

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

**Specific Purpose:** The purpose of this change is to use clearer and unambiguous language and avoid the use of the term "exempt" and replace with "not required to comply".

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity and provide consistency with other exceptions in the Energy Code.

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

**Specific Purpose:** The specific purpose of the change is to delete the "; and" from subsection b and to add "and" to subsection a.

**Necessity:** The proposed change to delete the "; and" from subsection b and to add "and" to subsection a are necessary to clarify the outdoor lighting alteration requirements of Section 141.0(b)2Lii and that both subsection a and subsection b are required for meeting the requirements of Section 141.0(b)2Lii.

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 141.0-F

**Purpose:**

The specific purpose of the change is to delete the reference in Table 141.0-F to "130.1(c)1D" as there is no such section in the Energy Code.

The specific purpose of the change is to delete the reference in Table 141.0-F to "130.1(c)7" as Section 130.1(c)7 is no longer used as requirements in the Energy Code.

**Necessity:**

The change is necessary to delete the reference to Section 130.1(c)1D as Section 130.1(c)1D does not exist in the Energy Code.

The change is also necessary to delete the reference to Section 130.1(c)7 as Section 130.1(c)7 is not used as requirements in the Energy Code. These changes ensure clarity and avoid ambiguity and provide consistency within the Energy Code.

**Section:** Section 141.1(a)

**Specific Purpose:** Revise language so that all additions and alterations meet requirements in Section 140.9(c) as opposed to only newly installed systems.

**Necessity:** The existing code language was overly broad and allowed for addition and alteration projects that were otherwise intended to meet requirements in 140.9(c) to avoid these requirements. The 10,000-cfm limitation included in alterations language

pertains to requirements associated with fan system power consumption. This limitation is called out specifically in referenced 140.9(c) code language. Additionally, referenced language further explains when specific alteration projects would be excepted. Applying requirements to additional addition and alteration projects that are not limited in the same way that fan system power consumption is limited will reduce energy usage. Tightening how additions, alterations, and repairs must meet 140.9(c) requirements will reduce excessive energy use as directed by California Public Resources Code 25213 and 25402.

**Section:** Section 141.1(c)2

**Specific Purpose:** The specific purpose of the changes to this Section is to correct an error in the existing language and to align the requirements with the code language.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** Section 141.1(c)3

**Specific Purpose:** The specific purpose of the changes to this Section is to align the requirement with the code language.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code. Section 120.6(h)2 was combined with Section 120.6(h)6, now Section 120.6(h)5, since the lighting requirements for both indoor grows and greenhouses are now the same.

**Section:** Section 141.1(d)

**Specific Purpose:** This addition specifies when insulation requirements apply to alteration projects. New insulation requirements will apply to newly installed piping and pipes that are relocated as part of an alteration.

**Necessity:** This addition clarifies that piping insulation requirements apply only to newly installed piping and piping relocated during alterations of covered process piping. These scenarios will result in reductions to energy usage at the facility by applying insulation requirements to these projects, while limiting excessive costs from installing insulation in piping that cannot be easily insulated or accessed. These requirements for insulation in alteration project will reduce excessive energy uses as directed by California Public Resources Code 25213 and 25402.

**Section:** 150.0(a)1 – Roof Deck Insulation

**Specific Purpose:** The purpose of this change is to more specifically describe the roof deck insulation requirements and their applicability to roofs that are above attics that are above conditioned space.

**Necessity:** The roof deck insulation requirements are unnecessary for attics that are above unconditioned spaces. Where attic space above unconditioned space is separated from attic space above conditioned space by an air barrier between the two spaces, insulation on the roof of the unconditioned side would not result in energy

savings, as the space below that attic area is not conditioned. This change will reduce costs and without resulting in the wasteful or uneconomical consumption of energy.

**Section:** Exception 2 to Section 150.0(a)1

**Specific Purpose:** The purpose of the exception is to allow buildings with buried duct insulation using the performance path to not have to comply with the mandatory roof deck insulation requirements.

**Necessity:** This change is to ensure that single family residential buildings have an equal alternative to the mandatory minimum roof deck insulation requirement to give the builder and designers more options to meet the equal amount of energy efficiency as other options.

**Section:** 150.0(c)1

**Specific Purpose:** The specific purpose this change is to increase the mandatory requirement for wall insulation in single-family residential buildings to increase the minimum level of energy efficiency for the building envelope.

**Necessity:** This change is necessary to ensure that wall insulation in single-family residential buildings meets a minimum level of performance and do not otherwise consume a wasteful, or uneconomical amount of energy.

**Section:** 150.0(c)2

**Specific Purpose:** The specific purpose this change is to increase the mandatory requirement for wall insulation in single-family residential buildings to increase the minimum level of energy efficiency for the building envelope.

**Necessity:** This change is necessary to ensure that wall insulation in single-family residential buildings meets a minimum level of performance and do not otherwise consume a wasteful, or uneconomical amount of energy.

**Section:** 150.0(c)6

**Specific Purpose:** The specific purpose of this change is to align the R-values with the new U-factor requirements found in Section 150.0(c)2.

**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(h)1 and 150.0(h)5 Mandatory Features and Devices, Space-Conditioning Equipment, Building Cooling and Heating Loads.

**Specific Purpose:** The purpose of this change is to define a minimum capacity limit for heat pumps that excludes supplementary heating capacity. Additionally, this change establishes that there are no limits on minimum space conditioning cooling capacity, or maximum limits on heating or cooling capacity for newly constructed buildings.

**Necessity:** This revision is necessary to ensure that space conditioning systems' performance is not degraded due to under sizing. These sizing requirements for space

conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

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

**Specific Purpose:** The purpose of this exception is to allow block loads to be used for the purpose of sizing space conditioning equipment for additions.

**Necessity:** This exception is necessary to define when simplified space conditioning load calculations can be used. 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:** 150.0(h)2B, 2C

**Specific Purpose:** The purpose of this change is to add alternative sources of outdoor design condition from ASHRAE Handbook Equipment Volume, Applications Volume and Fundamental Volume, SMACNA Residential Comfort System Installation Standards Manual, and ACCA Manual J. These sources are already used for calculating cooling and heating load under Section 150(h)1. As part of this addition, the term 99.0 percent Heating Dry Bulb is introduced as an alternative to Heating Winter Median of Extreme. This change aligns with similar changes in Sections 140.4(b)3 and 160.3(b)2.

**Necessity:** The necessity for this change is to increase flexibility in mechanical system design by allowing commonly used design conditions from the ASHRAE Handbook, SMACNA Manual and ACCA Manual J. The addition of 99.0 percent Heating Dry Bulb is a commonly used industry term in the ASHRAE handbook to calculate heating load. 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)5

**Specific Purpose:** The purpose of this change is to clarify that minimum heating capacity requirements apply to furnace/AC systems in addition to heat pumps.

**Necessity:** This revision is necessary to ensure that space conditioning systems' performance is not degraded due to under sizing. These sizing requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(h)6

**Specific Purpose:** The purpose of this change is to require that heat pump space conditioning systems with defrost delay timers have their delay timers set to no less than 90 minutes in order to reduce the frequency and energy use of defrost operation. The purpose of exceptions 1 and 2 is to ensure this measure is not required in climate zones and dwelling unit types where it is not shown to be cost effective.

**Necessity:** This revision is necessary to reduce the energy consumed during defrost operation by heat pump space conditioning systems and the reheat recovery period associated with defrost cycles. An exception is necessary for buildings Climate Zones 6 and 7, as well as dwelling units with conditioned floor area of 500 square feet or less in Climate Zones 3, 5 through 10, and 15 due to lack of cost effectiveness in these climates zones and building types. This defrosts time requirement will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(h)7

**Specific Purpose:** The purpose of this change is to require that heat pump space conditioning systems with electric resistance heat and dual fuel heat pump space conditioning systems do not utilize the systems' supplementary heating at temperatures above 35°F unless the systems defrost cycle or emergency operation are occurring. The purpose of exceptions 2 and 3 is to ensure this measure is not required in climate zones and dwelling unit types where it is not shown to be cost effective.

**Necessity:** The proposed revision is necessary to reduce the use of heat pump space conditioners' energy intensive supplementary heating systems are not used when the heat pump can meet the demand and rely on the more energy-efficient compression heat. An exception is necessary for buildings Climate Zones 7 and 15, as well as dwelling units with conditioned floor area of 500 square feet or less due to lack of cost effectiveness in these climates zones and building types. This supplementary heat cutoff temperature requirement will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(h)7 Exception 1-3

**Specific Purpose:** The purpose of exception 1 is to exempt room-air conditioner heat pumps, from the requirements in 150.0(h)7 because they generally do not have the capability to control supplementary heating cutoff temperatures or interface with third party thermostats that would allow for users to control supplementary heating cutoff temperatures. The purpose of exception 2 and exception 3 in 150.0(h)7 exempts buildings in climate zones 7, 15 and conditioned floor spaces less than 500 square feet due to lack of cost effectiveness in these climate zones.

**Necessity:** The proposed exception 1 is necessary to ensure that the requirements in 150.0(h)7 only apply to space conditioning systems that are capable of meeting the requirements. Exceptions 2 and 3 to this measure are necessary as it is not proven to be cost effective for buildings in Climate Zone 7, 15 and as well as dwelling units with conditioned floor area of 500 square feet.

**Section:** 150.0(h)8

**Specific Purpose:** The purpose of this change is to impose capacity limits on heat pumps space conditioning systems' supplemental electric resistance heaters.

**Necessity:** The proposed revision is necessary to reduce over reliance upon heat pump space conditioners' energy intensive supplementary heating systems in situations when those systems are not needed, and to ensure that heat pump space conditioning

systems' performance is not degraded due to under sizing. This electric resistance supplementary heat capacity limit will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(h)9

**Specific Purpose:** The purpose of this change is to require variable and multispeed space conditioning systems be capable of responding to heating and cooling loads by modulating system compressor speed when the systems are controlled by third party thermostats. Additionally, the proposed change ensures that third party thermostats controlling variable and multispeed space conditioning systems meet thermostat requirements outlined in 150.0(i)2.

**Necessity:** This addition is necessary to ensure that variable speed and multi speed space conditioning systems' performance and ability to vary compressor speed to match heating and cooling load is not degraded when the systems are controlled by third-party thermostats. This requirement will reduce excessive energy use, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(i)1

**Specific Purpose:** The purpose of this change is to make a clarification that this subsection only applies to setback thermostats so that the added section for thermostats that are applied to heat pumps with supplemental heating is distinct from the setback thermostat requirements.

**Necessity:** This proposed change is 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, this new term ensures and improves 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:** 150.0(i)2

**Specific Purpose:** The purpose of this change is to require thermostats that are applied to heat pumps with supplemental heating be capable of locking out supplementary heating when the outdoor air temperature (OAT) is above 35°F, receiving and displaying outdoor air temperature information, indicating when supplementary heat or emergency heat is utilized, allowing defrost supplementary heat operation when the OAT is above 35°F, and allowing user enabled emergency supplementary heat operation when the OAT is above 35°F.

**Necessity:** The proposed revision is necessary to reduce the use of heat pump space conditioners' energy intensive supplementary heating systems in situations when those systems are not needed. This supplementary heat cutoff temperature requirement will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

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

**Specific Purpose:** The purpose of this exception is to not obligate heat pumps with supplementary heaters to comply with the requirements that necessitate heat pump thermostats to both display outdoor air temperature and cut off supplementary heat above 35°F if the heat pumps lock out supplementary heat using another control device,  
**Necessity:** This exception is necessary to ensure only one heat pump supplementary heating lockout control device is required by the energy code, eliminating a redundant requirement where other devices are used to control the supplementary heating cutoff temperature of a heat pump. This exception is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

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

**Specific Purpose:** The purpose of this exception is to not obligate room air-conditioner heat pumps to comply with the requirements for thermostats that are applied to heat pumps with supplementary heating.

**Necessity:** This exception is necessary because most room air-conditioner heat pump products come with built in manufacturer controls and do not have the ability to operate with third party thermostats. It is onerous to apply the requirements surrounding thermostats used for heat pumps with supplementary heating to room air-conditioner heat pump products. This exception is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 150.0(j)1A

**Specific Purpose:** The specific purpose of this change is to update the reference to the California Plumbing Code from Section 609.11 to Section 609.12. This section was renumbered in the 2022 California Plumbing Code.

**Necessity:** This exception is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** 150.0(k)1

**Specific Purpose:** The specific purpose of the change is to delete Table 150.0-A and to move requirements of Table 150.0-A to Section 150.0(k)1. Table 150.0-A contains applicable requirements that are required to comply with Joint Appendix JA8 for residential light sources depending on the lighting technology, the form factor of the light sources and the lighting applications. The following sections are revised in order to retain requirements of Table 150.0-A.

- Section 150.0(k)1A is modified to incorporate substantive elements of Table 150.0-A and to point to requirements in JA8;
- Exception 1 to Section 150.0(k)1A is added with ceiling fan kits subject to federal appliance.
- Exception 4 to Section 150.0(k)1A is added with light source listed, including LED light sources installed outdoors; solid state lighting (SSL) luminaires containing colored light sources; high intensity discharge (HID) light sources; and luminaires with high frequency generator and induction lamps.
- Section 150.0(k)1B is deleted.

**Necessity:** The proposed change to delete Table 150.0-A and to move its requirements to Section 150.0(k)1 would consolidate the residential luminaire and light source requirements within the body of Section 150.0(k)1 and without having to look up both the Table and the body of the Section in order to determine the requirements. 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(k)1A

**Specific Purpose:** The specific purpose of the changes is to add “light sources” to “All installed luminaires” and to replace “Table 150.0-A” with “Joint Appendix JA8”. The specific purpose of the changes is to retain the applicability of Table 150.0-A to all light sources and luminaires except those listed as exceptions to Section 150.0(k)1A.

**Necessity:** The proposed change to add “light sources” and to add “Joint Appendix JA8” to Section 150.0(k)1A is reasonably necessary as Joint Appendix JA8 is one of the mandatory requirements in Table 150.0-A for all applicable light sources and luminaires to comply with.

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(k)1B

**Specific Purpose:** The specific purpose of the change is to delete the code language about screw-based luminaires that they shall contain lamps that comply with Joint Appendix JA8. This change is necessary to delete redundant code language for luminaires and light sources to comply with Joint Appendix JA8.

**Necessity:** The proposed change is to delete the redundant code language requiring light sources to comply with Joint Appendix JA8 as Section 150.0(k)1A already requires all installed luminaires and light sources – including light sources in screw-based luminaires - to comply with JA8. 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(k)1C

**Specific Purpose:** The specific purpose of the change is to replace the word “Section” with “Article”.

**Necessity:** The proposed change to use the word “Article” instead of “Section” is necessary as the reference, “California Electrical Code”, is organized the language by article and not by section. 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(k)1D

**Specific Purpose:** The specific purpose of the change is to clarify the code language by changing the order of the phrase “In enclosed or recessed luminaires” and with associated grammatical changes for the requirements of light sources “in enclosed or recessed luminaires”.

**Necessity:** The proposed change of re-ordering of the phrase “in enclosed or recessed luminaires” is necessary to improve the readability of the code 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:** 150.0(k)1E

**Purpose:** The specific purpose of the change is to replace the term ‘must’ with ‘shall’ to keep it consistent with the other section of the code that “shall” is used.

**Necessity:** The proposed change to use the term “shall” is to ensure the same term “shall” is used on every occasion where the requirements are mandatory. 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(k)2B

**Specific Purpose:** The specific purpose of the change is to move the code language to Section 150.0(k)2D. The code language specifies that no other controls shall bypass the controls of dimmer, occupant sensor or vacancy sensor, and the language can be consolidated as “Controls permitted” as part of Section 150.0(k)2D.

**Necessity:** The proposed change to move the language to Section 150.0(k)2D is to consolidate requirements of “controls permitted” within the same section and the change can aid code users in comprehending the 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** 150.0(k)2C

**Specific Purpose:** The specific purpose of the change is to add section heading “All lighting controls”.

**Necessity:** The proposed change to add a section heading is to aid code users in looking up the 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 150.0(k)2D**

**Specific Purpose:** The specific purpose of the change is to add section heading “Controls permitted” and to add the section language of Section 150.0(k)2B to Section 150.0(k)2D.

**Necessity:** The proposed change to add a section heading is to aid code users in looking up the Energy Code. The proposed change to add the language of Section 150.0(k)2B is to consolidate requirements of “controls permitted” within the same section and the change can aid code users in comprehending the 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 150.0(k)2F**

**Specific Purpose:** The specific purpose of the change is to delete the phrase “but not limited” to and the change is to clarify without changing the mandatory requirement. The phrase “but not limited to” does not impose a mandate and can be deleted without changing the mandatory requirement.

The other specific purpose of the change is to add “lighting integral to kitchen range hoods and bathroom exhaust fans” to Exception 1. There are already controls to the lighting integral to kitchen range hoods and bathroom exhaust fans as part of the operations of the kitchen range hoods and bathroom exhaust fans, and the lighting integral to kitchen range hoods and bathroom exhaust fans are considered task lighting that are more appropriate to be controlled as part of the operations of the kitchen range hoods and bathroom exhaust fans.

**Necessity:** The proposed change to delete the phrase “but not limited” is to clarify without changing the mandatory requirement of lighting dimming 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 150.0(k)2F (Exception 3)**

**Specific Purpose:** The specific purpose of the change is to clarify the requirements with editorial changes including break up the long sentence into two shorter sentences. The other editorial change is to rearrange the phrase, “rated less than five watts”, after “Navigation lighting” in one of the shorter sentences.

The other editorial change is to rearrange the phrase, “automatic-off controls”, to add “Lighting controlled by automatic-off controls and located” to the other shorter sentence, and to add “cabinetry with” before “doors”.

**Necessity:** The proposed change to clarify the requirements with editorial changes is necessary to clarify requirements of the Exception 3 so that the language and the requirements are clear to the code users.

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(k)2G**

**Specific Purpose:** The specific purpose of the change is to replace the phrase “integrated lighting of” by “lighting integral to” and the change is necessary to use a more commonly used phrase in the industry.

**Necessity:** The proposed change to use the phrase “lighting integral to” is to use a more commonly used phrase in the industry and without changing the mandatory 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 150.0(k)3**

**Specific Purpose:** The specific purpose of the change is to clarify the residential outdoor lighting controls requirements with editorial changes includes organizing the requirements by adding section numbering and by adding sign-post phrase “one of the following controls”.

The other specific purpose of the change is to add two phrases “(EMCS)” and “or other controls” and to add a clarifying statement, “no other controls shall bypass the controls of dimmer, occupant sensor or vacancy sensor”, for the dimmer or sensor that has been installed to comply with Section 150.0(k)3 for residential outdoor lighting.

**Necessity:** The proposed change of the editorial changes is to aid the code users in looking up and understanding the Energy Code.

The proposed change to add the phrases “(EMCS)” is to aid code users that energy management control system is also commonly known as EMCS in building industry and can be used for meeting the requirements.

The proposed change to add the phrases “or other controls” is to allow controls other than energy management control system to be installed for meeting the residential outdoor lighting requirements of Section 150.0(k)3.

The proposed change to add the clarifying statement is to ensure no other controls to interfere with the controls of dimmer, occupant sensor or vacancy sensor.

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)1Bii

**Specific Purpose:** The specific intent of this modification is to ensure that appropriately tempered air is effectively received at the register from the source.

**Necessity:** These changes are essential to address concerns about the lack of proper conditioned air reaching the register when uninsulated ducts are installed in an indirectly conditioned attic. By ensuring that all duct systems are insulated, except for those systems that are located entirely in conditioned space below the ceiling separating occupiable space from the attic, we ensure that minimal energy is lost due to conduction caused by higher temperatures in the attic.

**Section:** 150.0(m)12A Exception 1

**Specific Purpose:** The specific purpose of this change is to modify the language for clarity without changing the intent.

**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)13C: Exception 1

**Specific Purpose:** The specific purpose of this change is to establish an exception related to advancements in compressor system technology, particularly those employing multispeed or variable speed compressors. Such systems inherently possess the capability 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.

**Necessity:** This modification to the exception is needed to ensure that certified installers can effectively demonstrate adherence to airflow and fan efficacy requirements while utilizing the latest advancements in multispeed or variable speed compressor systems and will improve energy savings in buildings as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(n)1Ai

**Specific Purpose:** The specific purpose of this change is to modify the existing branch circuit requirement from 10 American Wire Gauge (AWG) copper to rating at 30 amps minimum.

**Necessity:** These changes are necessary to eliminate concerns that the current requirement is overly prescriptive and may interfere with electrical code requirements for branch circuit sizing in some cases. These changes improve clarity of the requirements and thereby enhance code compliance and enforcement of the standards. Making the requirement in terms of ampere instead AWG aligns the electric ready requirements in other parts of the Energy Code.

**Section:** 150.0(n)2

**Specific Purpose:** The specific purpose of this change is to remove subsection 2 and renumber subsequent sections.

**Necessity:** Subsection referencing water heating recirculation loop serving multiple dwelling units is no longer necessary because multifamily language restructuring has moved these requirements out of section 150.0, which is only applicable to single-family 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:** 150.0(o)1Civa

**Specific Purpose:** The specific purpose of this change is to add a point iv(a) to include IAQ filter and HRV/ERV accessibility requirements within occupiable spaces, basements, garages, balconies, and mechanical closets for regular service and not be located more than 10 feet above a walking surface inside a space specified above for compliance with this requirement.

**Necessity:** These changes are necessary to help improve accessibility for IAQ system component replacement and equipment maintenance to ensure ventilation control for which has both energy savings and public health and safety benefits. These changes are consistent with Public Resources Code §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** Exception to Section 150.0(o)1Civa

**Specific Purpose:** The specific purpose of adding this Exception is to incorporate accessibility requirements for systems requiring servicing from inside the attic as Staff acknowledged accessibility issues and timely maintenance challenges can persist regardless of the type of attic space due to unfavorable conditions of attic spaces.

**Necessity:** These changes are necessary to help improve accessibility for IAQ systems that require servicing from inside the attic to ensure ventilation control for which has both energy savings and public health and safety benefits. These changes are consistent with Public Resources Code §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

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

**Specific Purpose:** The specific purpose of this change is to add a point iv.b to include IAQ system component accessibility referencing the California Mechanical Code (CMC) Section 304.0.

**Necessity:** These changes are necessary to maintain consistency with the CMC language and does not change any regulatory obligations for regulated entities.

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

**Specific Purpose:** The specific purpose of this change is to add a point iv.c including outdoor air intakes referencing the California Mechanical Code (CMC) Section 402.4.1 requirements.

**Necessity:** These changes are necessary to maintain consistency with the CMC language and does not change any regulatory obligations for regulated entities.

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

**Specific Purpose:** The specific purpose of this change is to add a point iv.d to include outdoor air intake location, and accessibility to require access to outdoor air intakes that are located not more than 10 feet above a walking surface and if located on roofs shall reference California Mechanical Code Section 304.3.1.

**Necessity:** These changes are necessary to help improve accessibility for outdoor intakes to maintain consistency with the CMC language.

**Section:** Exception to Section 150.0(o)1Civd

**Specific Purpose:** The specific purpose of adding this exception is to incorporate outdoor air intake serving equipment with a Fault Indicator Display (FID) to meet the requirements of Reference Appendix JA 17.

**Necessity:** These changes are necessary as JA17 specifies HRV/ERV system FID qualification requirements including maintenance and accessibility requirements for outdoor intake serving equipment with an FID. These changes are consistent with Public Resources Code §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

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

**Specific Purpose:** Specify inclusion of cathedral ceiling insulation requirements under existing Option C which currently outlines ceiling insulation requirements for vented attics referenced by climate zone in Table 150.1-A.

**Necessity:** This change is necessary to enable compliance through a prescriptive option for cathedral ceiling construction which will improve energy savings in buildings as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(p), 150.0(p)1

**Specific Purpose:** The specific purpose of revision is to clean up existing code language.

**Necessity:** These changes are necessary to align with changes to the Title 20 Appliance Standard. These terms 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:** 150.0(p)1A

**Specific Purpose:** The specific purpose of this change is to add references to dedicated-purpose pool pumps and replacement dedicated-purposed pump motors, as well as updates to the applicable appliance standards.

**Necessity:** These changes are necessary to align with changes to the Title 20 Appliance Standard. These terms 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:** 150.0(p)1D-G

**Specific Purpose:** The specific purpose of this change is to remove outdated appliance standard references and add references to dedicated-purpose pool pumps and replacement dedicated-purposed pump motors.

**Necessity:** These changes are necessary to align with changes to the Title 20 Appliance Standard. These terms 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:** 150.0(q)

**Purpose:** The specific purpose of this change is to clarify that when meeting Exception 1 or Exception 2 then the user is not required to comply with Section 150.0(q).

**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(q)1

**Purpose:** The specific purpose of this change is to reduce the mandatory U-factor requirement for all fenestration products, including skylights, to ensure that all fenestration products in a newly constructed building meet a minimum U-factor of U-0.40.

**Necessity:** This change is necessary to ensure that all fenestration products in newly constructed buildings performs at a minimum level of performance and do not otherwise consume a wasteful, or uneconomical amount of energy consistent with California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(q)2

**Purpose:** The specific purpose of this change is to remove the option to use area-weighted averaging to meet the mandatory U-factor requirement.

**Necessity:** This change is necessary to ensure that all windows in newly constructed buildings meet a minimum level of performance, and do not otherwise consume a wasteful, or uneconomical amount of energy consistent with California Public Resources Code sections 25213 and 25402.

**Section:** 150.0(s)

**Specific Purpose:** The specific purpose of this addition is to eliminate the energy storage ready requirements for the buildings that don't require large residential service (125 A). As a result, small ADUs will not have to upsize the electrical service and put extra conduits to comply with energy storage ready requirements. Also, the exception

has been added to make sure that energy storage ready requirements don't apply if the energy storage system is already installed.

**Necessity:**

These adjustments are essential for providing clarity regarding the intent of the code, particularly concerning when the requirement for energy storage readiness must be fulfilled. 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(s)1A

**Specific Purpose:** The specific purpose of this change is to add reference to Section 150.0(s)2 to the four branch circuits requirements.

**Necessity:** This change is necessary to remove ambiguity on whether the four branch circuits are the same as the ones specified in Section 150.0(s)2. This change is essential for providing clarity regarding the intent of the code, particularly concerning when the requirement for energy storage readiness must be fulfilled. 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.

**Exception to Section:** 150.0(s): Exception

**Specific Purpose:** The specific purpose of this change is to add a new exception to the BESS ready requirements if a BESS is being installed with the newly constructed building.

**Necessity:** This change is necessary for providing clarity regarding the intent of the code, particularly concerning when the requirement for energy storage readiness must be fulfilled. 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 150.0-A

**Specific Purpose:** The proposed change is to delete Table 150.0-A.

**Necessity:** The change to delete Table 150.0-A is necessary to consolidate the requirements into an article of Section 150.0(k)1A. 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:** Table 150.0-E

**Specific Purpose:** The specific purpose of this change is to remove the "or 5 ACH capacity" compliance criteria applicable to enclosed kitchens.

**Necessity:** These changes are 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. These changes incorporate 2022 ASHRAE 62.2 Section 5, Table 5-1 requirements with modifications to clarify airflow measurement procedures are 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:** 150.1(b)

**Specific Purpose:** The specific purpose of this change is to clarify that energy budgets for single family buildings are expressed in terms of Long-Term System Cost (LSC), and Source Energy. Obsolete language stating that energy budgets are expressed in Time Dependent Valuation and Energy Design Rating is deleted. The breakdown of LSC into two sub-budgets, Efficiency LSC and Total LSC, is clarified.

**Necessity:** These changes are necessary to clarify and make specific how the energy budget is calculated and the use of the terms to be used for establishing energy budgets. These changes align language that has the same purpose in sections 140.1, 150.1(b) and 170.1.

Long-term System Cost is similar to Time Dependent Valuation in that it varies for every hour of the year to capture the value of energy and emissions at different times of the day and at different times of the year. Long-term System Cost is a cost metric that represents long-term marginal costs to the energy system over 30-years through which we hope to better account for, and relay to the public, the long-term dollar cost impact to California's energy system.

**Section:** 150.1(b)2

**Specific Purpose:** The specific purpose of this change is to remove requirements specifically for additions and alterations; the specification of the term for which the energy budget is expressed for additions and alterations is properly stated in section 150.2. The subsequent subsections that follow 150.1(b)2 are renumbered.

**Necessity:** These changes are necessary to 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. The energy budget for addition and alterations are already specified in Section 150.2.

**Section:** 150.1(b)2Bi

**Specific Purpose:** The purpose of this change is to align the energy code with updated Department of Energy ratings for EER, SEER and HSPF.

**Necessity:** These changes are necessary to ensure that the energy code references the updated EER, SEER, and HSPF ratings being used by the Department of Energy.

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

**Specific Purpose:** Specify inclusion of cathedral ceiling insulation requirements under existing Option C which currently outlines ceiling insulation requirements for vented attics referenced by climate zone in Table 150.1-A.

**Necessity:** This change is necessary to enable compliance through a prescriptive option for cathedral ceiling construction which will improve energy savings in buildings as directed by California Public Resources Code sections 25213 and 25402.

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

**Purpose:** The specific purpose of this change is (1) to clarify that the requirements of Option C apply to ventilated attics, and (2) to extend the requirements to cathedral ceilings as well.

**Necessity:** (1) This change is necessary to 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.

(2) This change is necessary to ensure that buildings with cathedral ceilings, which have their ducts (if any) located within the conditioned space, are compared to buildings with ventilated attic configurations which also have their ducts located within the conditioned space.

**Section:** 150.1(c)3A – Exception 1

**Purpose:** The specific purpose of this change is to add an exception for new dwelling units with a conditioned floor area of less than or equal to 500 square feet in climate zones 5 through 10 and 15 to comply with a maximum U-factor of U-0.30.

**Necessity:** This change is necessary as the analysis for the 2025 code measure proposal did not find it to be cost-effective to require a U-factor of U-0.27 or U-0.28 for dwelling units 500 square feet or less, in those climate zones. Repealing this requirement does not have a significant impact on the whole-building energy savings resulting from this code update.

**Section:** 150.1(c)3A – Exception 2

**Purpose:** The specific purpose of this change is to modify the code language to remove the word “new”. Since Section 150.1 of the code deals exclusively with newly constructed single-family buildings it is redundant to specify here that we are dealing with new glazing area/skylights.

**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)3A – Exception 3

**Purpose:** The specific purpose of this change is to reduce the maximum U-factor allowed for newly constructed buildings to align with the new mandatory maximum U-factor requirement of Section 150.0(q). Additionally, the SHGC requirement for climate zones 1, 3, 5, and 16 were removed to align with the SHGC requirements found in Table 150.1-A.

**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)4

**Purpose:** The specific purpose of this change is to clarify that for the SHGC prescriptive standard is a maximum value, and not a minimum.

**Necessity:** This change is necessary to ensure energy savings are realized 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)6

**Specific Purpose:** The specific purpose of this change is to remove climate zones 3, 4, 13, and 14 from the language, therefore making the heat pump space heater prescriptive requirement applicable to all climate zones.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.1(c)7Ai

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to better clarify the Energy Code. This better aligns the Energy Code with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** 150.1(c)7Aib

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to better clarify the Energy Code. This better aligns the Energy Code with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:**150.1(c)7AicII

**Specific Purpose:** The purpose of this change is to remove the option that allowed for refrigerant charge verification through the installation of equipment that utilizes a fault indicator display (FID).

**Necessity:** These changes are necessary to clean up the energy code by removing a section that is no longer needed. Various issues associated with FIDs that may impact their effectiveness or reliability are that industry codes are frequently misinterpreted, have limited diagnostic capabilities, sensor accuracy has been poor, are not sensitive enough to detect small leaks or provide timely alerts and suffer from lack of standardization. Removal of the inclusion of the option for refrigerant charge verification through FIDs in the energy code can help improve overall system reliability and safety.

**Section:** 150.1(c)8 Exception 1

**Specific Purpose:** The specific purpose of this change is to remove exception 1 for gas instantaneous water heaters in climate zones 3, 4, 13, and 14. Subsequent exceptions are renumbered. Also, the specific purpose of this change is to remove the note as reference the language for clarity without changing the intent. **Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402 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:** 150.1(c)8 Exception 1 after renumbering

**Specific Purpose:** The specific purpose of this change is to remove reference to instantaneous electric water heaters, making this exception applicable to all electric water heater.

**Necessity:** This change allows more flexibility for ADU where small storage electric has similar performance to instantaneous electric water heater.

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

**Specific Purpose:** The specific intent of this modification is to ensure that appropriately tempered air is effectively received at the register from the source.

**Necessity:** These changes are essential to address concerns about the lack of proper conditioned air reaching the register when uninsulated ducts are installed in an indirectly conditioned attic. By ensuring that all duct systems are insulated, except for those systems that are located entirely in conditioned space below the ceiling separating occupiable space from the attic, we ensure that minimal energy is lost due to conduction caused by higher temperatures in the attic.

**Section:** Exception 1 and 2 to Section 150.1(c)11

**Purpose:** The purpose of this change is to use clearer and unambiguous language and avoid the use of the term "exempt". Exceptions 1 and 2 are rewritten to avoid the use of the term "exempt" and to simply and unambiguously state that provisions of Section 140.7(a) are not required for each of the exceptions.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity and provide consistency with other exceptions in the Energy Code.

**Section:** 150.1(c)14

**Specific Purpose:** The purpose of this change is to clarify and reduce compliance ambiguity by establishing a definitive calculation that is applicable for all roofs for determining the PV requirement when solar access roof area (SARA) is limited. The

calculation establishes separate requirements for buildings with steep-sloped roofs and for buildings with low-sloped roofs. The calculation is based on the physical dimensions and performance of standard PV arrays rather than on the unfettered discretion of the installer. This corrects the language in the current Energy Code that does not provide a definitive means to determine the PV requirement.

**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. 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)14Biii

**Specific Purpose:** The purpose of this change is to clarify, make specific and reduce administrative burden. Section 150.1(c)14B was clarified and made more specific by separately addressing compliance with other state building codes as a reason for roof area to not be available, in addition to compliance with local building codes if confirmed by the Executive Director (ED). Compliance with state building codes would not require ED confirmation; compliance with local building codes would continue to require ED confirmation.

**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. This change is necessary to improve compliance with and enforcement of the Energy Code by reconciling potential conflicts with other state and local building code obligations for how roof area will be used and contribute to the optimum achievement of energy savings due to installation of PV systems.

**Section:** 150.1(c)14 Equation 150.1-C and Table 150.1-C

**Specific Purpose:** The purpose of this change is to avoid the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, and present in a clear and specific manner the PV requirement for single family buildings considering both conditioned floor area and the EER2 of cooling equipment. Revised climate specific coefficients and constants for the equation are provided in changes to Table 150.1-C.

The equation is designed to avoid increased energy consumption allowed by the current 2022 Energy Code when heat pumps replace air conditioners. When heat pumps are used that have lower EER2 efficiency than allowed for air conditioners, the higher cooling energy for the building is offset by a corresponding increase in the size of the PV system required for the building.

**Necessity:** These changes are necessary to avoid increased energy consumption through cost-effective PV requirements consistent with California Public Resources Code section 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. This change is necessary to improve compliance with and enforcement of the Energy Code by clarifying the specific PV requirement needed to avoid increased building energy consumption due to lower EER2 efficiency, thereby achieving the energy savings goals of this provision.

**Section:** Exception 5 to section 150.1(c)14

**Specific Purpose:** The term “usable capacity” has been replaced with “cycling capacity” as defined in JA12. Also, the term “battery storage system” has been replaced with “ESS (Energy Storage System)” as defined in Section 100.1(b). These changes are necessary to clarify the requirements for the energy storage system in the exception.

**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)15

**Specific Purpose:** The specific purpose of this change is to add a requirement to include ventilation system Fault Indicator Display (FID) requirements for HRV/ERV systems.

**Necessity:** These changes are necessary to ensure ventilation control for which has both energy savings and public health and safety benefits. These changes are consistent with Public Resources Codes §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** Table 150.1-A

**Purpose:** The specific purpose of this change is to reduce the maximum prescriptive U-factor to U-0.27 in climate zones 1-6 and 8-16, and U-0.28 in climate zone 7.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** Table 150.1-A

**Specific Purpose:** The specific purpose of this change is to add a row named ventilation systems in Table 150.1-A to include ventilation system Fault Indicator Display (FID) requirements for HRV/ERV systems.

**Necessity:** These changes are necessary to ensure ventilation control for which has both energy savings and public health and safety benefits. These changes are consistent with Public Resources Codes §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** Table 150.1-A

**Specific Purpose:** Revise table to include prescriptive maximum required cathedral ceiling insulation R-value. Revisions and additions are also required in the accompanying footnotes.

**Necessity:** This change is necessary to enable compliance through a prescriptive option for cathedral ceiling construction, which allows for better compliance and better achieves the energy saving goals of the Energy Code.

**Section:** 150.2(a) - Exceptions 1 and 5

**Specific Purpose:** The specific purpose of this change is to modify the language for clarity without changing the intent.

**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:** 150.2(a) - Exception 3

**Specific Purpose:** The specific purpose of this change is to modify the language for clarity without changing the intent and to reference 2022 California Residential Code 303.10 which states the required heating design temperatures for a dwelling unit.

**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:** 150.2(a) - Exception 7

**Specific Purpose:** The specific purpose of this change is to remove the exception that allows alternatives to a heat pump or gas heating system for space heating. By removing this exception, the intent is to establish a more standardized and consistent approach to space heating systems, aligning with the recent changes to the heat pump baseline for single family newly constructed buildings.

**Necessity:** This modification is deemed necessary to ensure uniformity and adherence to the standards. These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** 150.2(a)1Aii - Exception

**Specific Purpose:** The specific purpose of this change is to add an exception for alterations that add fenestration area in climate zone 15. Instead of meeting the prescriptive SHGC requirement of Table 150.1-A, projects can comply with a maximum SHGC of 0.23.

**Necessity:** This change is necessary to ensure that alterations projects in climate zone 15 that are adding additional fenestration do not need to install darker tinted windows in order to meet the SHGC requirement of 0.20 required of newly constructed buildings.

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

**Specific Purpose:** The specific purpose of this change is to change reference from second water heater to additional water heater.

**Necessity:** These changes are necessary to address the situation for additions to existing single-family buildings, when the existing building already has 2 or more water heaters. This will 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:** 150.2(a)1Diii

**Specific Purpose:** The specific purpose of this change is to remove subsection iii for fossil fuel instantaneous water heaters. Subsequent sections are renumbered.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 150.2(a)1Diii – After re-numbering

**Specific Purpose:** The specific purpose of this change is to remove the word “instantaneous” as a descriptor of the prescriptive option, making this option applicable to all electric water heater. This aligns with similar change in Exception 1 to Section 150.1(c)8.

**Necessity:** This change allows more flexibility for small addition 500 square feet or less, where small storage electric has similar performance to instantaneous electric water heater.

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

**Specific Purpose:** The purpose of this change is to establish that the minimum capacity requirements for space conditioning systems described in Section 150.0(h)5 apply to additions.

**Necessity:** This change is necessary to improve the general clarity and internal consistency of the Energy Code to and ensure that space conditioning systems in additions adhere to the minimum capacity requirements described in Section 150.0(h)5.

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

**Specific Purpose:** The purpose of this change is to require additions’ maximum heating and cooling capacity be based on heating design load, cooling design load, space conditioning system type, and duct sizing.

**Necessity:** This revision is necessary to ensure that space conditioning systems’ performance is not degraded due to over sizing when ducts are not also sized accordingly. These sizing requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

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

**Specific Purpose:** The purpose of Section 150.2(a)1Eiii is to require that the envelope infiltration assumption used in space conditioning sizing calculations is not larger than a maximum value that is dependent on the type of square footage of a dwelling unit.

**Necessity:** This change is necessary to ensure systems are not sized based on overestimated infiltration assumptions, reducing the likelihood that a space conditioning systems' performance will be downgraded due to oversizing. The exception is necessary to allow for cases where envelope infiltration values would be determined by diagnostic testing, and there would be no risk of overestimation of infiltration or system oversizing as a result. These sizing calculation requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** Exception to Section 150.2(a)1Eiii

**Specific Purpose:** The purpose of 150.2(a)1E Exception 1 is to allow for envelope leakage values higher than the maximum values given in table 150.2-C when leakage is established through field verification and diagnostic testing.

**Necessity:** This change is necessary to ensure systems are sized based on values derived from field verification and diagnostic testing instead of being sized based on overestimated infiltration assumptions. These sizing requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** Table 150.2-A

**Specific Purpose:** The purpose of Table 150.2-A is to define the maximum allowed heating capacity for additions with various space conditioning system types and various design load conditions.

**Necessity:** This revision is necessary to ensure that space conditioning systems' performance is not degraded due to over sizing when ducts are not also sized accordingly. These sizing requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** Table 150.2-B

**Specific Purpose:** The purpose of Table 150.2-B is to define the maximum allowed cooling capacity for additions with various space conditioning system types and various design load conditions.

**Necessity:** This revision is necessary to ensure that space conditioning systems' performance is not degraded due to over sizing when ducts are not also sized accordingly. These sizing requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** Table 150.2-C

**Specific Purpose:** The purpose of Table 150.2-C is to define the maximum envelope infiltration value that can be assumed during load calculations unless leakage is established through field verification and diagnostic testing.

**Necessity:** This change is necessary to ensure systems are not sized based on overestimated infiltration assumptions, reducing the likelihood that a space conditioning systems' performance will be downgraded due to oversizing. These sizing calculation requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 150.2(a)2

**Specific Purpose:** The purpose of this change is to clarify that for additions projects using the performance approach the energy budget will be expressed in terms of Long-term System Cost.

**Necessity:** This change is necessary to ensure consistency with the rest of the Energy Code which transitions terminology from Time Dependent Valuation to the Long-term System Cost.

**Section:** Exception to Section 150.2(a)2B

**Specific Purpose:** The specific purpose of this change is to ensure clarity and improve readability without changing the requirement.

**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:**150.2(a)2D

**Specific Purpose:** The purpose of this change is to add a language that requires additions using the performance approach to adhere to requirements in Section 150.2(a)1E that necessitate additions' maximum heating and cooling capacity be based on heating design load, cooling design load, space conditioning system type, and duct sizing. This change also specifies maximum values for the envelope leakage to be used in load calculations.

**Necessity:** This revision is necessary to ensure that space conditioning systems' performance is not degraded due to over sizing when ducts are not also sized accordingly. This section is also necessary to ensure systems are not sized based on overestimated infiltration assumptions. These sizing requirements for space conditioning systems will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code sections 25213 and 25402.

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

**Purpose:** The specific purposes of these changes is (1) to reduce the square footage allowance for vertical fenestration added as part of an alteration from 75 square feet to 16 square feet, and (2) to lower the U-factor and SHGC requirements for skylights to align with the prescriptive requirements for newly constructed buildings.

**Necessity:** (1) This change is necessary to ensure that vertical fenestration added as part of an alteration performs at a level consistent with the standards for newly constructed buildings, thereby increasing energy savings of existing buildings. However, alterations that add up to 16 square feet are not required to comply with the total and west-facing fenestration area requirements of Section 150.1(c)3B and C.

(2) This change is necessary to ensure that skylights perform at a level consistent with the standards for newly constructed buildings, thereby increasing energy savings of existing buildings.

**Section:** 150.2(b)1B – Exceptions 1

**Specific Purpose:** The specific purpose of this change is to replace the symbol for through (e.g., -) and instead write it out to ensure that screen readers convey the standard accurately when read aloud.

**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:** Section 150.2(b)1B Exception 2

**Purpose:** The specific purpose of this change is to ensure that replacement skylights installed as part of an alteration align the new mandatory maximum U-factor requirement found in Section 150.0(q).

The specific purpose of this change is to reduce the maximum U-factor for replaced skylights to  $U=0.40$ .

**Necessity:** This change is necessary to ensure that replacement skylights in existing single-family residential buildings that are being altered perform at a minimum level of performance and does not otherwise consume a wasteful, or uneconomical amount of energy consistent with California Public Resources Code sections 25213 and 25402.

**Section:** 150.2(b)1B – Exception 3

**Specific Purpose:** The specific purpose of this change is to allow vertical fenestration to be replaced with a product that has an SHGC no greater than 0.23 in climate zone 15, as opposed to the 0.20 prescriptively required in Section 150.1(c)3A and Table 150.1-A.

**Necessity:** This change is reasonably necessary to ensure that the aesthetic of the building is not affected by requiring replacement vertical fenestration to use darker glass to comply with the prescriptive SHGC requirement.

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

**Specific Purpose:** The specific purpose of these changes is to add a reference to Section 150.2(b)1Fii. Entirely new or complete replacement duct space-conditioning systems need to meet the refrigerant charge verification standard of Section 150.2(b)1Fii.

**Necessity:** This change is necessary to ensure that all applicable requirements are accurately referenced, and to reduce any ambiguity.

**Section:** Table 150.2 D

**Specific Purpose:** Table 150.2 A was renamed Table 150.2 D to reflect the addition of tables.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

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

**Specific Purpose:** The purpose of this change is to remove the option that allowed for refrigerant charge verification through the installation of equipment that utilizes a fault indicator display (FID).

**Necessity:** These changes are necessary to clean up the energy code by removing a section that is no longer needed. Various issues associated with FIDs that may impact their effectiveness or reliability are that industry codes are frequently misinterpreted, have limited diagnostic capabilities, sensor accuracy has been poor, are not sensitive enough to detect small leaks or provide timely alerts and suffer from lack of standardization. Removal of the inclusion of the option for refrigerant charge verification through FIDs in the energy code can help improve overall system reliability and safety.

**Section:** Table 150.2 E

**Specific Purpose:** Table 150.2 B was renamed Table 150.2 E to reflect the addition of tables.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** Table 150.2 F

**Specific Purpose:** Table 150.2 C was renamed Table 150.2 F to reflect the addition of tables.

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code

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

**Specific Purpose:** The specific purpose of this change is to cite the specific section of the California Building Code that pertains to attic ventilation – California Residential Code, Title 24, Part 2.5, Section R806.

**Necessity:** This change is necessary to ensure that the correct section of the California Building Code is referenced, and to reduce any ambiguity.

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

**Specific Purpose:** The specific purpose of changes to remove the reference to Table 150.0-A as the Table is deleted from the Energy Code The existing reference to luminaire efficacy requirements of Section 150.0(k) still remains to be in effect.

**Necessity:** This change is reasonably necessary 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:** Exception 3 to Section 150.2(b)1ii

**Specific Purpose:** The purpose of this change is to clarify that roofs with a weight of at least 25 LB/ft<sup>2</sup> do not need to meet the cool roof requirement.

**Necessity:** This change is necessary to ensure clarity within the Energy Code, as directed by California Government Code, Section 11349 and 11349.1.

**Section:** Exception 3 to Section 150.2(b)1iiia

**Specific Purpose:** The purpose of this change is to clarify that roofs with a weight of at least 25 LB/ft<sup>2</sup> do not need to meet the cool roof requirement.

**Necessity:** This change is necessary to ensure clarity within the Energy Code, as directed by California Government Code, Section 11349 and 11349.1.

**Section:** 150.2(b)2

**Specific Purpose:** The purpose of this change is to clarify that for alterations projects using the performance approach the energy budget will be expressed in terms of Long-term System Cost.

**Necessity:** This change is necessary to ensure consistency with the rest of the Energy Code which transitions terminology from Time Dependent Valuation to Long-term System Cost.

**Section** 150.2(b)2B

**Specific Purpose:** The specific purpose of this change is to clarify that third-party certification options must be verified by a field verification and diagnostic testing certified ECC-rater.

**Necessity:** The proposed change is necessary to provide clarification of the intent of verification for specific construction elements. This will help 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. Using the Performance approach for changes to existing homes may include additional energy credits for components that exceed the minimum energy efficiency requirements of the Energy Code and require verification. These additional credits can only be taken into account when they are verified but the Energy Code was not clear about what entity must provide this verification. The intent was that the ECC-Rater provided this service; this change is necessary to make that intent clearer.

**Section:** Table 150.2-G

**Purpose:** The specific purpose of these changes is to increase the stringency of the standard design for which altered fenestration and window films are compared to when third-party verification of the existing condition is not performed. Additionally, the language for fenestration when third-party verification is performed was rewritten to use the existing fenestration U-factor and SHGC values as verified by a third-party inspector.

**Necessity:** These changes are necessary to ensure that the standard design is met accurately when third-party verification of the existing condition is, and is not, performed. By setting the standard design for altered fenestration components to a lower U-factor and SHGC, we are increasing the energy efficiency of existing buildings, resulting in increased energy savings.

**Section:** 160.1(b)2

**Purpose:** The specific purpose of this change is to reduce the mandatory requirement for metal framed wall insulation in multifamily residential buildings.

**Necessity:** This change is necessary to establish an updated minimum level of performance of insulation for metal framed walls in multifamily residential buildings as standards are assessed and reviewed periodically to ensure these buildings do not otherwise consume a wasteful amount of energy, or uneconomical amount of energy.

**Section:** 160.1(b)3A and B

**Purpose:** The specific purpose of this change is to reduce the mandatory requirement for wood framed wall insulation in multifamily residential buildings.

**Necessity:** This change is necessary to establish an updated minimum level of performance of wall insulation for wood framed walls in multifamily residential buildings as standards are assessed and reviewed periodically to ensure these buildings do not otherwise consume a wasteful, or uneconomical amount of energy.

**Section:** Exceptions 1 and 2 to Section 160.1(e)1

**Specific Purpose:** The purpose of these changes is to use clearer and unambiguous language and avoid the use of the term "exempt". These exceptions are rewritten to avoid the use of the term "exempt" and to simply and unambiguously state that specific existing duct systems are not required to comply.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity and provide consistency with other exceptions in the Energy Code.

**Section:** 160.1(g)1 through 4

**Specific Purpose:** The specific purpose of adding this standard for multifamily buildings is to ensure that, when slab edge insulation is installed, it meets minimum specifications regarding water absorption rate, water vapor permeance, damage protection, and ultraviolet protection. These standards already exist in the Energy Code for slab edge insulation installed in nonresidential, and single-family buildings. Thus, to ensure consistent requirements are met across the Energy Code, this language was added to the requirements for multifamily buildings.

**Necessity:** Concrete is generally a poor insulator, and slab edge insulation helps to slow heat flow between the bottom floor of a building and the earth and air around it. These changes are necessary to ensure that materials used for slab perimeter insulation are protected, to ensure that these products increase building energy efficiency where they are installed, and to ensure consistency with requirements for this insulation across all building types.

**Section:** Exception to Section 160.2(b)1

**Specific Purpose:** The purpose of this change is to use clearer and unambiguous language and avoid the use of the term "exempt". This exception is rewritten to avoid the use of the term "exempt" and to simply and unambiguously state that evaporative coolers are not required to otherwise comply with Section 160.2(b)1.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity and provide consistency with other exceptions in the Energy Code.

**Section:** 160.2(b)2Aiv(b)

**Specific Purpose:** The specific purpose for the changes to this section are to require both balanced ventilation and compartmentalization, with supply-only ventilation to be used in lieu of balanced ventilation, updating requirements such that dwelling units shall comply with both updated subsections 1 and 2.

**Necessity:** These changes are necessary to ensure adequate outdoor air supply and reduce pollutant transfer and potential particle infiltration between units to improve and maintain adequate indoor air quality. These changes are consistent with Public Resources Codes §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** 160.2(b)2Aivb2

**Purpose:** The purpose of this change is to mention NA1.9 directly in the Energy Code (Title 24, Part 6).

**Necessity:** The intent of NA1.9 is to allow an ATT to perform field verification and diagnostic testing if an ATT is already on the project performing acceptance tests or if the installer is a certified ATT. This alternative procedure is located in the Reference Appendices. The change is necessary because it clarifies directly in the Energy Code where NA1.9 can be used.

**Section:** 160.2(b)2Axia

**Specific Purpose:** The specific purpose of this change is to add the point xia, which includes IAQ system filter and HRV/ERV accessibility requirements within occupiable spaces, basements, garages, balconies, mechanical closets, or accessible rooftops for regular service and not be located more than 10 feet above a walking surface inside a space specified above for compliance with this requirement.

**Necessity:** These changes are necessary to help improve accessibility for IAQ system component replacement and equipment maintenance to ensure ventilation control for which has both energy savings and public health and safety benefits. These changes

are consistent with Public Resources Codes §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** Exception to Section 160.2(b)2Axia

**Specific Purpose:** The specific purpose for adding this exception is to incorporate accessibility requirements for systems requiring servicing from inside of an attic.

**Necessity:** These changes are necessary to help address unfavorable accessibility conditions of attic spaces that may otherwise exist and tend to cause challenges for timely maintenance of the systems placed there. This exception thus seeks to improve accessibility for IAQ systems that require servicing from inside the attic to ensure ventilation control for which has both energy savings and public health and safety benefits. These changes are consistent with Public Resources Codes §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** 160.2(b)2Axib

**Specific Purpose:** The specific purpose of this change is to add point xib to include IAQ system component accessibility which references the California Mechanical Code (CMC) Section 304.0.

**Necessity:** The addition is necessary to maintain consistency with the CMC language and does not change any regulatory obligations for regulated entities.

**Section:** 160.2(b)2Biv

**Purpose:** The purpose of this change is to mention NA1.9 directly in the Energy Code (Title 24, Part 6).

**Necessity:** The intent of NA1.9 is to allow an ATT to perform field verification and diagnostic testing if an ATT is already on the project performing acceptance tests or if the installer is a certified ATT. This alternative procedure is located in the Reference Appendices. The change is necessary because it clarifies directly in the Energy Code where NA1.9 can be used.

**Section:** Exception to Section 160.2(b)2C

**Specific Purpose:** The specific purpose of this change is to add an exception to Section 160.2(b)2C for multifamily buildings with three or fewer habitable stories in Climate Zone 7.

**Necessity:** This exception is necessary as this measure is not currently proven to be cost effective in Climate Zone 7. These changes ensure and improve general clarity and 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:** Exception 1 to Section 160.2(c)2 and Exception 2 to Section 160.2(c)2D

**Specific Purpose:** The specific purpose of these non-substantial changes is to move the Exception 1 to Section 160.2(c) to become Exception 2 to Section 160.2(c)2D. This does not change the intent of the code, but will better clarify the requirements.

**Necessity:** These changes are reasonably necessary for better clarity of the mechanical ventilation requirements when designing a naturally ventilated zone. These changes 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. Moving the requirements from the section header into the requirements list improves 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:** Exception 2 to Section 160.2(c)2 and Exception 1 to Section 160.2(c)2D

**Specific Purpose:** The specific purpose of these non-substantial changes is to move the Exception 1 to Section 160.2(c) to become Exception 2 to Section 160.2(c)2D. This does not change the intent of the code, but will better clarify the requirements.

**Necessity:** These changes are reasonably necessary for better clarity of the mechanical ventilation requirements when designing a naturally ventilated zone. These changes 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. Moving the requirements from the section header into the requirements list improves 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:** 160.2(c)2A and B

**Specific Purpose:** The specific purpose of these non-substantial changes is aligning natural ventilation requirements with ASHRAE 62.1 – 2022 version. These changes make clearer the requirements of different building openings and correctly cites the new sections in ASHRAE 62.1-2022 version which were unaligned previous code cycle.

**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 rewording and aligning of citations ensure and improves 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:** 160.2(c)2, 160.2(c)2D

**Specific Purpose:** The specific purpose of these non-substantial changes is to move the mechanical ventilation requirements previously located in the body text header of 160.2(c)2 into the listed requirements as subsection D..

**Necessity:** These changes are reasonably necessary for better clarity of the mechanical ventilation requirements when designing a naturally ventilated zone. In previous code languages these requirements were overlooked due to the past format and location. These changes 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. Moving the requirements from the section header into the requirements list improves 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:** 160.2(c)3

**Specific Purpose:** The specific purpose of these changes is to revert the language to align with 2019 Building Energy Code ventilation logic where it is intended that code users comply the larger of Equation A or B. The exception that was added in the 2022 Building Energy Code was intended to clarify this section, but instead it had unintentionally been interpreted to remove this 'greater than logic' for ventilation.

**Necessity:** These changes reintroduce the equations and a 'greater of' comparison but does not change the ventilation rates from previous cycles. This prevents designers from taking an exception to only use a designed occupancy when previous cycles designed occupancy method and area method had to be compared for the larger ventilation rate.

**Section:** 160.2(c)5Dv

**Specific Purpose:** The specific purpose for the changes reflected in the section referenced above including referencing the equation is to align this section with the new changes made to the minimum ventilation section 160.2(c)3 and Table 160.2-B, where the process for determining ventilation rates have been changed back to a comparison greater than equation. This increases clarity and promotes consistency of the requirements for minimum ventilation which has been an issue for the last two code cycles.

**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 improves 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:** 160.2(c)5E

**Specific Purpose:** The specific purpose of these changes is to make clear the requirements of this section without changing stringency and for format consistency.

**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. In the previous code cycle designers are seeming to avoid this requirement where the requirement language is in the intro body of this section. Moving from the intro body into a list format improves compliance by showing the requirements explicitly.

**Section:** 160.2(c)8

**Specific Purpose:** The specific purpose of these changes is to update the references to the ASHRAE 62.1 document.

**Necessity:** These changes are reasonably necessary to ensure that references are directing users of the Energy Code to the correct sections of documents incorporated by reference.

**Section:** Table 160.2-A

**Specific Purpose:** The specific purpose of these changes is to remove these tables entirely. They are not being used and were copied over in the previous cycle to the multifamily section by mistake.

**Necessity:** These changes are reasonably necessary to correct a precious error and 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, this new term ensures and improves 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:** Table 160.2-B

**Specific Purpose:** The specific purpose of these changes is to mimic the nonresidential tables 120.1-A which align with the California Mechanical Code. The changes to the footnotes of this table align with the nonresidential table changes in reverting the ventilation equation back to the greater than comparison described in Section 120.1(c)3 of this document.

**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 allows designers to see the comparison of ventilation rates between the area method or person method which has been a confusion among the industry since the change went into effect in 2019. This reverts back to 2016 using a greater than equation and provides more transparency in the ventilation rates and these changes are not intended to affect the current minimum ventilation requirements

**Section:** Table 160.2-C and Table 160.2-D

**Specific Purpose:** The specific purpose of these changes are to align the referenced tables above with the table updates provided in the ASHRAE 62.1 – 2022 version. Changes to table 160.2-C updates the reference to the same table in ASHRAE 62.1. Changes to Table 160.2-D includes new entries that provide air classification.

**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 rewording and aligning of citations 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:** 160.3(b)2B, 2C

**Specific Purpose:** The purpose of this change is to add alternative sources of outdoor design conditions from the ASHRAE Handbook, Equipment Volume, Applications Volume and Fundamental Volume, SMACNA Residential Comfort System Installation Standards Manual, and ACCA Manual J. These sources are already used for calculating cooling and heating load under Section 150(h)1. As part of this addition, the term 99.0 percent Heating Dry Bulb is introduced as an alternative to Heating Winter Median of Extreme. This change aligns with similar changes in Sections 140.4(b)3 and 150.0(h)2.

**Necessity:** The necessity for this change is to increase flexibility in mechanical system design by allowing commonly used design conditions from the ASHRAE Handbook, SMACNA Manual and ACCA Manual J. The addition of “99.0 percent Heating Dry Bulb” is a commonly used industry term from the ASHRAE handbook to calculate heating load. 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)7

**Specific Purpose:** The purpose of this change is to add requirements for heat pumps space conditioning systems with defrost delay timers to have their delay timers set to no less than 90 minutes in order to reduce the frequency and energy use of the defrost operation. An exception is included for dwelling units in climate zones 1, 6, 7, 8, 9, 10, 15 and 16 because staff’s analysis did not show cost effectiveness in those climate zones.

**Necessity:** This revision is necessary to reduce the energy consumed during the defrost operation by heat pump space conditioning systems as well as the energy consumed during the reheat recovery period associated with defrost cycles. This defrost time requirement will reduce excessive energy use via cost-effective building design standards, as directed by California Public Resources Code 25213 and 25402.

**Section:** 160.3(b)8

**Specific Purpose:** The purpose of this change is to add a requirement for variable and multispeed space conditioning systems to be capable of responding to heating and cooling loads by modulating system compressor speed when the systems are controlled

by third party thermostats. This change will also require the installer to test and certify the control configuration.

**Necessity:** This addition is necessary to ensure that variable speed and multi speed space conditioning systems' performance and ability to vary compressor speed to match heating and cooling load is not degraded when the systems are controlled by third-party thermostats. This requirement will reduce excessive energy use, as directed by California Public Resources Code 25213 and 25402

**Section:** 160.3(c)1Aii

**Specific Purpose:** The specific purpose of this change is to add reference of "suction" to the refrigerant line insulation requirement. This matches the refrigerant suction line insulation requirement for space cooling system and similar changes made to Section 120.3(a)2.

**Necessity:** This change is necessary to match the intent of the Standard. Existing language implies the entire refrigerant distribution system needs to be insulated. Typically, only the suction line carrying vapor would need to be insulated, as it is currently required for space cooling systems.

**Section:** 160.3(c)2Hi

**Purpose:** The purpose of this change is to delete the HERS field verification and diagnostic testing from the requirements provided for in the section referenced above and replace it with acceptance testing.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by a HERS rater. The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the HERS program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in multifamily common areas is under the scope of the ATTCP program. Removing the HERS field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** 160.3(d)1

**Specific Purpose:**

The purpose of this change is to correct minor errors in referencing, spelling, and grammar.

**Necessity:**

This change is necessary to better clarify or correct minor issues with the Energy Code. This benefits the CEC by complying with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** Section 160.3(d)1D

**Purpose:** The purpose of this change is to modify terminology and avoid the use of the term “exempt” for clarity without changing the intent of the Energy Code. When particular requirements in the Energy Code are not applicable to particular construction situations or equipment for specific reasons, the Energy Code does provide exceptions that indicate compliance is not required in that instance.

**Necessity:** This change is necessary to ensure clarity and avoid ambiguity, and to provide consistency with other exceptions in the Energy Code.

**Section:** 160.3(d)2A

**Purpose:** The purpose of this change is to remove acceptance testing for high-rise multifamily dwelling unit ventilation systems. In addition to reformatting the subsequent subsections to properly reflect the removal of previous A and B sections.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires dwelling unit ventilation systems to be acceptance tested by a certified mechanical ATT and field verified by a HERS rater. The change to remove acceptance testing is necessary because this requirement is duplicative and redundant as written in the 2022 Energy Code with the HERS testing requirement. Dwelling unit ventilation systems tested by a HERS rater is sufficient to ensure compliance.

**Section:** 160.3(d)2B

**Purpose:** The purpose of this change is to remove acceptance testing for high-rise multifamily dwelling unit enclosure leakage test. In addition to reformatting the subsequent subsections to properly reflect the removal of previous A and B sections.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires dwelling unit ventilation systems to be acceptance tested by a certified mechanical ATT and field verified by a HERS rater. The change to remove acceptance testing is necessary because this requirement is duplicative and redundant as written in the 2022 Energy Code with the HERS testing requirement. Dwelling unit enclosure leakage tested by a HERS rater is sufficient to ensure compliance.

**Section:** 160.4(a)

**Specific Purpose:** Moving the heat pump water heater ready language in subsection 160.4(a) to 160.9(e). Subsequent sections are renumbered.

**Necessity:** These changes are necessary to improve clarity of the requirements and thereby enhance code compliance and enforcement of the standards. By moving subsection a. we are consolidating the electric ready requirements to ensure 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:** 160.4(e)1-3

**Specific Purpose:** The specific purpose of these changes is to add a comprehensive list of mandatory pipe insulation requirements, including explicitly naming components that would require insulation. These changes provide clarity to the design and installation industry to ensure uniform pipe insulation of the heating plant, recirculation loop, and branches to the dwelling units, and result in minimize pipe heat loss.

**Necessity:** Bad pipe insulation practices result in excessive pipe heat loss and higher energy use. These changes are necessary to ensure best practice in pipe insulation installation and energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.4(e)2

**Specific Purpose:** The specific purpose of these changes is to specify alternative insulation thickness requirements if the insulation conductivity is outside the range Table 160.4-A. This language is similar to the existing pipe insulation language in Section 120.3(c), this change restates the requirement in 160.4(e)2A to allow alternative insulation thickness requirements.

**Necessity:** These changes are necessary to 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. This change restates the requirements originally located in Section 120.3.

**Section:** 160.4(e)3A

**Specific Purpose:** The specific purpose of this change is to add a reference to piping appurtenance in the insulation protection requirements to clarify that the insulation protection requirements are also applicable to insulation appurtenance. Additionally, staff have added language to this section to require that the appurtenance insulation cover shall be removable and re-installable. This change is in alignment with the requirement in 160.4(e)1H3, where appurtenance insulation is required to be removable and re-installable. Therefore, the cover shall also be removable and re-installable.

**Necessity:** Bad pipe insulation practices result in excessive pipe heat loss and higher energy use. These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.4(e)4

**Specific Purpose:** The specific purpose of this change is to add a new mandatory requirement for field verification of insulation quality.

**Necessity:** This change is necessary to ensure quality installation of pipe insulation. Recent study indicate that poor pipe insulation installation is a common practice. For example, tees and elbows are often not insulated and this results in excessive pipe heat

loss and higher energy use. These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402.

**Section:** 160.4(f)1- Exception 1

**Specific Purpose:** The specific purpose of these changes is to delete this exception relating to space conditioning equipment. Pipe insulation requirement for space conditioning equipment is already covered under Section 160.3(c)1, therefore this exception is not needed.

**Necessity:** These changes are necessary to 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. Insulation for space conditioning is specified under Section 160.3(c)1.

**Section** 160.5(a)1 and Table 160.5-A

**Specific Purpose:** The specific purpose of the change is to delete Table 160.5-A and to move requirements of Table 160.5-A to Section 160.5(a)1. Table 160.5-A contains applicable requirements for residential light sources depending on the lighting technology, the form factor of the light sources and the lighting applications. The following sections are revised in order to retain requirements of Table 160.5-A.

- Section 160.5 (a)1A are modified.
- Exception 1 to Section 160.5(a)1A is revised with ceiling fan kits subject to federal appliance.
- Exception 4 to Section 160.5(a)1A is added with light source listed, including LED light sources installed outdoors; solid state lighting (SSL) luminaires containing colored light sources; high intensity discharge (HID) light sources; and luminaires with high frequency generator and induction lamps.
- Section 160.5(a)1B is deleted

**Necessity:** The proposed change to delete Table 160.5-A and to move its requirements to Section 160.5(a)1 would consolidate the residential luminaire and light source requirements within the body of Section 160.5(a)1 and without having to look up both the Table and the body of the Section in order to determine the requirements. 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** 160.5(a)1A and Table 160.5-A

**Specific Purpose:** The specific changes made in this section were to add “light sources” to “All installed luminaries” and to replace “Table 160.5-A” with “Joint Appendix JA8”.

**Necessity:** The proposed change to add “light sources” and to add “Joint Appendix JA8” to Section 160.5(a)1A is reasonably necessary as Joint Appendix JA8 is one of the

mandatory requirements in Table 160.5-A for all applicable light sources and luminaires to comply with. The change is necessary to retain the applicability of Table 160.5-A to all light sources and luminaires except those listed as exceptions to Section 160.5(a)1A. 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 160.5(a)1A (Exception 1)**

**Specific Purpose:** The specific purpose of the changes adds, “ceiling fan kits that are subject to federal appliance standards” and to makes other minor editorial changes associated with the added phrase.

**Necessity:** The proposed change to add “ceiling fan kits that are subject to federal appliance standards” that were listed in Table 160.5-A of the 2022 Energy Code is necessary to retain the exception for ceiling fan kits that are subject to federal appliance standards.

The proposed change to make minor editorial changes associated with the added phrase, “ceiling fan kits that are subject to federal appliance standards”, is necessary to ensure correctness of the 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 160.5(a)1A (Exception 2)**

**Specific Purpose:** The specific purpose of the changes is to rearrange and revise the phrase “less than 5 watts” and to spell out “5 watts” as “five watts”.

**Necessity:** The proposed change to rearrange the phrase “less than 5 watts” is to clarify the Exception. The proposed change to spell out the numeral, “5”, is to ensure consistency in writing style of the 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 160.5(a)1A (Exception 3)**

**Specific Purpose:**

The specific purpose of the change is to rearrange the phrase “with an efficacy of 45 lumens per watt or greater” to be after “Lighting” and to replace “and” with “or” before “linen closets”. This is to clarify the requirements without adding new lighting types to the Exception.

**Necessity:**

The proposed changes to rearrange the phrase “with an efficacy of 45 lumens per watt or greater” and other associated editorial changes are to clarify the Exception without adding new lighting types to the 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, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

#### **Section 160.5(a)1A (Exception 4)**

**Specific Purpose:** The specific purpose of the changes is to add a new Exception for the light sources that were listed in Table 160.5-A of the 2022 Energy Code.

**Necessity:** The proposed change to add a new Exception for the light sources that were listed in Table 160.5-A of the 2022 Energy Code is necessary to retain the exception for these lighting sources.

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 160.5(a)1B**

**Specific Purpose:** The specific purpose of the change is to delete the code language about screw-based luminaires that they shall contain lamps that comply with Joint Appendix JA8. This change is necessary to delete redundant code language for luminaires and light sources to comply with Joint Appendix JA8.

**Necessity:** The proposed change is to delete the redundant code language requiring light sources to comply with Joint Appendix JA8 as Section 160.5(a)1A already requires all installed luminaires and light sources – including light sources in screw-based luminaires - to comply with JA8 which is required for all installed luminaires and light sources.

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 160.5(a)1C**

**Specific Purpose:** The specific purpose of the change is to replace the word “Section” with “Article”.

**Necessity:** The proposed change to use the word “Article” instead of “Section” is necessary as the reference, California Electrical Code” is organized by article and not by section.

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 160.5(a)1D**

**Specific Purpose:** The specific purpose of the change is to clarify the code language by changing the order of the phrase “In enclosed or recessed luminaires” and the associated grammatical changes for the requirements of “light sources in enclosed or recessed luminaires”.

**Necessity:** The proposed change of re-ordering of the phrase “in enclosed or recessed luminaires” is necessary to improve the readability of the code 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 160.5(a)1E**

**Specific Purpose:** The specific purpose of the change is to replace the term ‘must’ with ‘shall’ to keep it consistent with the other section of the code where “ shall” is used. In addition, the spelling of five is modified from the use of the numerical.

**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 160.5(a)2B**

**Specific Purpose:** The specific purpose of the change is to move the code language from this section to the end of Section 160.5(a)2D. The code language specifies that no other controls shall bypass the controls of dimmer, occupant sensor or vacancy sensor, and the language can be consolidated as “Controls permitted” as part of Section 160.5(a)2D.

**Necessity:** The proposed change to move the language to Section 160.5(a)2D is to consolidate requirements of “controls permitted” within the same section thus aiding code users in comprehending the Energy Code with ease.

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 160.5(a)2C**

**Specific Purpose:** The specific purpose of the change is to add section heading “All lighting controls”.

**Necessity:** The proposed change to add a section heading is to aid code users in looking up the 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 160.5(a)2D**

**Specific Purpose:** The specific purpose of the change is to add section heading “Controls permitted” and to add the section language previously located in Section 160.5(a)2B to the end of this section, Section 160.5(a)2D.

**Necessity:** The proposed change to add a section heading is to aid code users in looking up the Energy Code. The proposed change to add the language of Section 160.5(a)2B is to consolidate requirements of “controls permitted” within the same section and the change can aid code users in comprehending the Energy Code. The change is necessary to clarify types of controls permitted to be installed and to clarify no controls shall bypass control functions required for meeting Section 160.5(a)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 160.5(a)2F**

**Specific Purpose:** The specific change is to delete the phrase “but not limited” to clarify without changing the mandatory requirement. The phrase “but not limited to” is superfluous in this sentence and can be deleted without changing the mandatory requirement.

**Necessity:** The proposed change to delete the phrase “but not limited” is to clarify without changing the mandatory requirement of lighting dimming 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 160.5(a)2F- Exception 1**

##### **Specific Purpose:**

The specific change is to add “lighting integral to kitchen range hoods and bathroom exhaust fans” to Exception 1.

**Necessity:** There are already controls to the lighting integral to kitchen range hoods and bathroom exhaust fans as part of the operations of the kitchen range hoods and bathroom exhaust fans, and the lighting integral to kitchen range hoods and bathroom exhaust fans are considered task lighting that are more appropriate to be controlled as part of the operations of the kitchen range hoods and bathroom exhaust fans.

#### **Section 160.5(a)2F - Exception 3**

**Specific Purpose:** The specific purpose of the change is to clarify the requirements with editorial changes including breaking up the long sentence into two shorter sentences.

The other editorial change is to rearrange the phrase, “rated less than five watts”, after “Navigation lighting” in one of the shorter sentences.

The other editorial change is to rearrange the phrase, “automatic-off controls”, to add “Lighting controlled by automatic-off controls and located” to the other shorter sentence, and to add “cabinetry with” before “doors”.

**Necessity:** The proposed change to clarify the requirements with editorial changes is necessary to clarify requirements of the Exception 3 so that the language and the requirements are clear to the code users.

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 160.5(a)2G**

**Specific Purpose:** The specific purpose of the change is to replace the phrase “integrated lighting of” with “lighting integral to”.

**Necessity:** The proposed change to use the phrase “lighting integral to” is to replace “integrated lighting” with a more commonly used phrase in the industry and without changing the mandatory requirements of the lighting controls.

The proposed change to 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. The proposed change is reasonably necessary to use a phrase recognized by industry.

### **Section 160.5(a)3**

**Specific Purpose:** The specific changes made in the section referenced above clarify the residential outdoor lighting controls requirements with editorial changes.

The change to Section 160.5(a)3A deletes the phrase “in items I and the requirements in either ii or item iii” and to adds “following” preceding “requirements”. The other changes rephrase subsection ii with the addition of phrases, “one of the following controls” (added to subsection ii) and “a photocell and” (added to subsection b).

The other specific purpose of the change to Section 160.5(a)3C is to add two phrases “(EMCS)” and “or other controls” and to add a clarifying statement, “no other controls shall bypass the controls of dimmer, occupant sensor or vacancy sensor”, for the dimmer or sensor that has been installed to comply with Section 160.5(a)3 for residential outdoor lighting.

**Necessity:** The changes to Section 160.5(a)3A are editorial and the changes is to aid the code users in looking up and understanding the outdoor lighting controls requirements. The changes to add the phrases, “one of the following controls” and “a photocell and” retain the existing code requirements and aid the code users in reading the language.

The proposed change to add the phrases “(EMCS)” is to signal to code users that energy management control system is also commonly known as EMCS in the building industry and can be used for meeting the requirements.

The proposed change to add the phrases “or other controls” is to allow controls other than energy management control system to be installed for meeting the residential outdoor lighting requirements of Section 160.5(a)3.

The proposed change to add the clarifying statement at the end of section 160.5(a)3C is to ensure no other controls interfere with the controls of dimmer, occupant sensor or vacancy sensor.

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 160.5(b)4A**

**Specific Purpose:** The proposed change renames the heading term as “manual controls” (previously “manual area controls”) and another term as “enclosed space” (previously “area enclosed by ceiling partitions”). The change renames these terms in Section 160.5(b)4Ai, the section title and other lighting section locations that have the usage of the previous terms. These terms are used in the national energy modal code, IECC, thus using similar terms can provide consistent language across the industry. The other proposed change in Section 160.5(b)4Aii modifies the section for clarity, by consolidating Exception 1 into Section 160.5(b)4Aii, and thus eliminating the need for the Exception. The change will provide a code language easier to read and comprehend.

**Necessity:** The change renames the terms, “manual controls” and “enclosed spaces” will provide an easier comprehension to readers who may use both the IECC and California Energy Code. The name changes do not alter the mandatory requirements of the section for providing manual controls for the mandated locations.

The change to clarify and revise Section 160.5(b)4Aii and the corresponding exception is reasonably necessary to provide more concise language that can be easier to read and are less burdensome to comprehend.

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**

**Specific Purpose:** The proposed change is to rename “enclosed space” (previously term “enclosed area”). The term is used in the national energy modal code, IECC and using similar terms can provide a code language widely available to read and comprehend.

The second proposed change consolidates the controls requirements of Table 160.5-B and the two subsections into one article of Section 160.5(b)4B. The change also removes Table 160.5-B. The requirements to maintain “illuminance uniformity” and to

provide “continuous dimming from 10-100 percent” are retained and moved to be part of Section 160.5(b)4B. The continuous dimming from 100-10 percent is retained as the continuous dimming requirement is applicable to LED light sources, which is widely adopted and used in all commercial and nonresidential lighting applications. The controls requirements for fluorescent lamps as light sources are not proposed to be retained as California law (AB-2208) bans the sales and distribution of fluorescent lamps as a new manufactured product after 2024 and 2025 – banning screw and bayonet base type compact fluorescent (CFL) lamps after January of 2024 and banning pin-base type CFL) and linear fluorescent lamps after January of 2025.

The HID and induction light source requirements in Table 160.5-B is retained and moved to a new Exception 3 of Section 160.5(b)4B. This change addresses the scenario for occasions that the light sources may still be used for the lighting applications.

The third proposed change is to clarify the Exception about the enclosed space that has only one luminaire and to revise that as long as there is only one luminaire in the space it is not required to comply with the multilevel lighting controls requirements. The change is to clarify the requirements related to LED light source technology and LED luminaires that they are widely adopted and in used in all commercial and nonresidential lighting applications and LED light sources are not in the form factor of lamps.

**Necessity:** These changes are reasonably necessary to ensure that the usage of the same term “enclosed space” is used consistently and thus provide an easier understanding of the Energy Code readers and code users, who may use both the IECC and California Energy Code. The name changes do not alter the mandatory requirements of the section for providing multilevel lighting controls for the mandated locations.

The changes to revise and consolidate the requirements of Section 160.5(b)4B, including removal of Table 160.5-B and consolidation of the two subsections (previously i. and ii.) into an article of Section 160.5(b)4B, are reasonably necessary to provide concise language that can be easier to read and are less burdensome to comprehend. The change to clarify and revise Exception 1 of this section, regarding enclosed space that has only one luminaire is reasonably necessary to address the new form factor of LED light source technology and LED luminaires.

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:** Exception 1 to 160.5(b)4B

**Specific Purpose:** The proposed change clarifies the scenario of an enclosed space that has only one luminaire. It revised to convey that as long as there is only one luminaire in the space it is not required to comply with the multilevel lighting controls requirements. The change clarifies the requirements related to LED light source technology and LED luminaires that they are widely adopted and in used in all commercial and nonresidential lighting applications and LED light sources are not in the form factor of lamps.

**Necessity:** The change to clarify and revise the exception about the enclosed space that has only one luminaire is reasonably necessary to address the new form factor of LED light source technology and LED luminaires. The changes improve the general clarity and internal consistency of the Energy Code.

**Section:** Exception 3 to 160.5(b)4B

**Specific Purpose:** The proposed change adds a new Exception 3.

**Necessity:** The change to add the exception is necessary to address the scenario where the light source of HID and induction may still be used for meeting the multilevel lighting control requirements and the installation scenarios of the HID and induction light source that meet the exception. The changes improve the general clarity and internal consistency of the Energy Code.

**Section: 160.5(b)4C**

**Specific Purpose:** The specific purpose is to delete “Automatic” from the heading.

**Necessity:** The change to delete “Automatic” is necessary to use the same term, “shut-OFF controls” in both Section 130.1(c) and 160.5(b)4C for the similar lighting controls requirements of shut-OFF controls. The change is necessary to avoid any confusions from using different names of the term.

**Section:** Exception to Section 160.5(b)4C

**Specific Purpose:** The specific purpose is to move the means of egress illumination as an exception to Section 160.5(b)4C and to revise language to improve the readability of the standards. The change to move the means of egress illumination as an exception to Section 160.5(b)4C is that the means of egress illumination is a life safety requirement taking precedence to the shut-off controls requirement. The exception was an exception to Section 160.5(b)4Ci. The editorial changes include adding the phrase “continuous illumination” so that it reads “continuous illumination of up to 0.1 watts per square foot in any area designated for egress within a building is allowed” and revising the phrase “as defined in the California Building Code” (was “as the term is used in the California Building Code”).

**Necessity:** The change to move the means of egress illumination as an exception to Section 160.5(b)4C is needed because means of egress illumination is a life safety requirement taking precedence to the shut-off controls requirement. The editorial changes clarify the allowance of continuous illumination for the means of egress illumination and states it more accurately to align the term “means of egress illumination” as defined in the California Building Code.

The proposed changes are reasonably necessary to ensure 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)4Ci

**Specific Purpose:** The specific purpose is to delete the phrase “In addition to lighting controls installed to comply with Sections 160.5(b)4A and B”.

Another specific purpose is to clarify the time delay requirement of occupant sensing controls. The change specifies that the control time-delay setting should be no more than a 20-minute time delay.

The other specific purpose is to clarify separate shutoff control zones are required for each space exceeding 5,000 square feet. The change revises the term as “separate control zones” (previously “separate controls”).

**Necessity:** The proposed change to delete the phrase “In addition to lighting controls installed to comply with Sections 160.5(b)4A and B” removes redundant language as Section 160.5(b)4A and B are mandatory for all installed indoor controls and the phrase does not provide any new information to the code readers.

The proposed change to specify the time-delay setting of occupant sensing controls clarifies that the time-delay setting required under Section 110.9 also applies to the occupant sensing controls specified under Section 160.5(b)4C. This is reasonably necessary to include the time-delay setting requirements in this portion of the code so that this important information related to energy and cost savings from using the occupant sensing controls is readily available for readers to comprehend the code requirements.

The change is reasonably necessary to clarify by using the phrase “separate control zones” to convey the same control system can be used to control a space larger than 5,000 square feet as long as each control zone is designated for a space not exceeding 5,000 square feet.

The proposed changes are reasonably necessary to ensure 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 2 to Section 160.5(b)4Ci

**Specific Purpose:** The specific purpose updates the list of sections for which lighting in compliance with each section is not required to comply with the requirements of Section 160.5(b)4Ci in order to reflect the changes within the shut-OFF controls section of Section 160.5(b)4C. The change removes Section 160.5(b)4Cvii from the list and adds Section 160.5(b)4Cvic.

**Necessity:** The change to the list of sections in the exception (Exception 2 to Section 160.5(b)4Ci) is to reflect other changes within the shut-OFF controls section of Section 160.5(b)4C. The change is necessary to ensure consistency and correctness of the code language.

**Section:** Exception 3 to Section 160.5(b)4Ci (Exception 3 in the 2022 Code)

**Specific Purpose:** The specific purpose of the change is to remove and update the numbering of the exceptions in this section.

**Necessity:** The change is reasonably necessary to ensure the numbering of the section is updated as part of the editorial changes to arrangement of the content of the Energy Code.

**Section:** Exception 4 to Section 160.5(b)4Ci (Exception 5 in the 2022 Code)

**Specific Purpose:** The specific purpose is to clarify what is considered to be “lighting equipment designated for emergency lighting” and the change is to delete the phrase, “connected to an emergency power source or battery supply”, from the Exception to Section 160.5(b)4Ci.

**Necessity:** The change to delete the phrase, “connected to an emergency power source or battery supply”, is to harmonize standards between California Energy Code and California Electrical Code about lighting equipment designated for emergency lighting. California Electrical Code specify how emergency systems including emergency lighting and “lighting equipment that is designated for emergency lighting” to be connected to emergency source. The change to delete the phrase would avoid any confusions about which codes to comply with about the connection requirements of emergency lighting.

**Section:** 160.5(b)4Ciii and iv

**Specific Purpose:** The specific purpose clarifies the automatic time-switch control requirements.

The changes include the following:

- the removal of the phrase “other than an occupant sensing control” from Section 160.5(b)4Ciii and iv.
- The addition of a new exceptions (Exception to Section 160.5(b)4Ciii, and Exception 2 to Section 160.5(b)4Civ) to the automatic time-switch control requirements. The exception is for areas where occupant sensing controls are installed.
- The addition of Exception 1 to section 160.5(b)4Ciii regarding shut off features in restaurants.
- The removal of the subsection 160.5(b)4Ciiia.

**Necessity:** The change to remove the permissive phrase “other than an occupant sensing control” is to avoid an over-burdensome language without altering the mandatory automatic time-switch control requirements.

The change to add the new exceptions for areas where occupant sensing controls are installed is to clarify that the installation of occupant sensing controls would eliminate the obligation for these areas to comply with the automatic time-switch installation requirements.

The editorial changes about the automatic holiday shut-off features of automatic time-switch control is to clarify with an emphasis the exception refers to the automatic holiday shut-off features so that the code requirements are easier to read and comprehend.

The change to remove subsection 160.5(b)4Ciiia is to remove the redundant language about meeting Section 160.5(b)4A as all occupant sensing controls including automatic time-switch controls are required to meet Section 160.5(b)4A.

The proposed changes are reasonably necessary to ensure 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)4Ciii - Exception to Section 160.5(b)4Ciii

**Specific Purpose:** The specific purpose is to add a new exception for "areas where occupant sensing controls are installed".

**Necessity:** The change to add a new exception for areas where occupant sensing controls are installed is necessary to clarify that the installation of occupant sensing controls would eliminate the obligation for these areas to comply with the automatic time-switch installation requirements.

**Section:** 160.5(b)4Civ - Exception 1 to Section 160.5(b)4Civ

**Specific Purpose:** The specific purpose is to add a new exception for "Automatic holiday shut-OFF features are not required in restaurants".

**Necessity:** The change to add a new exception for restaurants that "automatic holiday shut-OFF features are not required" is necessary to avoid any confusions about the applicable requirements of automatic time-switch control.

**Section** 160.5(b)4Civ - Exception 2 to Section 160.5(b)4Civ

**Specific Purpose:** The specific purpose is to add a new exception for "areas where occupant sensing controls are installed".

**Necessity:** The change to add a new exception for areas where occupant sensing controls are installed is necessary to clarify that the installation of occupant sensing controls would eliminate the obligation for these areas to comply with the automatic time-switch installation requirements.

**Section** 160.5(b)4Cv

**Specific Purpose:** The specific purpose is to delete the phrase "of any size" from the term "conference rooms" and the term "restrooms."

The other purpose is to add "and in restrooms" to the regulation about "areas not required by Section 160.5(b)4B to have multi-level lighting controls" and to add "automatic full-on" to the regulation about occupant sensing controls that are "in areas not required by Section 160.5(b)4B to have multi-level lighting controls."

**Necessity:** The change to delete the phrase "of any size" is necessary to delete the redundant language as the phrase "of any size" does not add more information about the requirement.

The change to add "and in restrooms" to the regulation about "areas not required by Section 160.5(b)4B to have multi-level lighting controls" is necessary as restrooms are not required to comply with the multi-level lighting controls requirements as stated in Section 160.5(b)4B. The change clarifies lighting controls required for restrooms.

**Section** 160.5(b)4Cvi

**Specific Purpose:** The specific purpose is to delete the phrase "in addition to complying with Section 160.5(b)4Ci".

**Necessity:** The change to delete the phrase "in addition to complying with Section 160.5(b)4Ci" is to remove the phrase as it is already a mandatory requirement for all

indoor lighting controls, including this section (Section 160.5(b)4Cvi and vii) to comply with Section 160.5(b)4Ci.

The proposed changes are reasonably necessary to ensure 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**

**Specific Purpose:** The specific purpose adds a requirement in section 160.5(b)4Cvib that offices greater than 250 square feet will be shown on plans for occupancy sensor control zones. The occupancy sensor control zone information is essential information to communicate across various parties including designers, installers, building officials, and acceptance testing agents to provide compliance with the occupancy sensing controls in offices greater than 250 square feet.

The other specific change clarifies the occupant sensing controls lighting power reduction level. It revises the phrase “to no more than 20 percent” (previously indicated as “by at least 80 percent”) in Section 160.5(b)4CvibII.

**Necessity:** The change to require occupancy sensor zones to be shown on plans is to ensure this essential information is documented for showing compliance to the requirements and can be readily communicated across various parties including designers, installers, building officials and acceptance testing agents and the occupancy sensing controls.

The change to use the phrase “to no more than 20 percent” is to use the same phrase in another subsection and using the same phrase can ensure consistency in the code language and to provide a code easy to understand.

The proposed changes are reasonably necessary to ensure 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; and Section 160.5(b)4Cvii**

**Specific Purpose:** The changes here include removing language from 160.5(b)4Cvii to a new section 160.5(b)4Cvic. The specific purpose i moves the occupant sensing parking space requirements - for parking garages, parking areas and loading and unloading areas currently located as 160.54Cvii - to a new subsection, Section 160.5(b)4Cvic, which is within 160.5(b)4Cvi. The requirements of the former Section 160.5(b)4Cvii regarding compliance with Section 160.5(b)4Ci is retained by including the phrase “that meet the requirements below instead of complying with Section 160.5(b)4Ci” as part of the new Section 160.5(b)4Cvic - for parking garages, parking areas and loading and unloading areas.

The other specific purpose of the change is to clarify the classification of indoor lighting as applicable to interior areas of parking garages and the classification of outdoor lighting as applicable to parking areas on the roof of a parking structure. The change does not alter the mandatory requirements of occupant sensing controls for the parking garages, parking areas and loading and unloading areas covered by Section 160.5(b)4Cvic.

**Necessity:** The change to move Section 160.5(b)4Cvii to Section 160.5(b)4Cvic is to reduce o subsections in the Energy Code to be more concise and easier to navigate and comprehend.

The change to clarify the classifications applicable to interior areas of parking garages and parking areas on the roof of a parking structure is to reduce any confusion arising from the interpretation of parking garages and parking structures meeting the occupancy sensing controls requirements of Section 160.5(b)4Cvic.

The proposed changes are reasonably necessary to ensure 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**

**Specific Purpose:** The specific purpose of the changes to this section are to revise and update the daylight responsive controls (also known as automatic daylighting controls) requirements of Section 160.5(b)4D in consideration of a proposal measure received (Docket document TN#251803, Docket Number 22-BSTD-01). The changes are listed as follows:

- Change the section title and the term “automatic daylighting controls” to “daylight responsive controls” throughout Section 160.5(b)4D and other parts of the Part 6, California Energy Code. The change is to use the term “daylight responsive controls” to match a similar term provided by the national energy modal code, IECC.
- Reduce the general lighting wattage trigger threshold from 120 watts to 75 watts for skylit daylight zones, primary sidelit daylight zones, and secondary sidelit daylight zones to the daylight responsive controls requirements (was “Automatic daylighting controls” requirements). Also, add specified language for the code-triggered thresholds of general lighting within skylit daylight zones, general lighting within primary sidelit daylight zones and general lighting within secondary sidelit daylight zones. Further, Exception 3 to Section 160.5(b)4D is revised with wattage level of the general lighting luminaires in the secondary side lit daylight zone for which daylight responsive controls are not required for the secondary side lit zone. To add a new numbering (Section 160.5(b)4D.1 thru 5) for locations that shall comply with the daylight responsive controls requirements and that are based on the proposed general lighting wattage trigger thresholds.
- Move the daylight responsive control requirement for parking garages in Exception 4 (was Exception 4 to Section 160.5(b)4D) to Section 160.5(b)4D5. The change is to produce the code easier to navigate and comprehend.
- Clarify the daylight responsive controls requirements for long general lighting luminaires and the manner that the long general lighting luminaires can be controlled for the daylight responsive controls. The change to Section 160.5(b)4D7c (was Section 160.5(b)4Dii) is to replace the term “linear LED and other solid-state lighting (SSL) light sources” with “general lighting luminaires

longer than 8 feet” and to revise the daylight responsive controls requirement as “general lighting luminaires longer than 8 feet shall be controlled as segments of 8 feet or less according to the type of the daylit zone in which the segment is primarily located”. Allowing general lighting luminaire of segments to be up to 8 feet long for meeting the requirements would address the likely cost impacts from using linear luminaires of short segment – as linear luminaires typically come in 8-foot segment.

- Clarify the daylight responsive controls shall adjust the lighting thru continuous dimming. The change to Section 160.5(b)4D8 (was Section 160.5(b)4Diiiia) is to delete the control type with stepped controls and to add the allowance of multilevel controls to adjust the light level. The change is to specify the daylight responsive controls with continuous controls in order to align with the ubiquitous usage and installation of LED luminaires.
- Add a new subsection 160.5(b)4Dvi 130.1(d)11, “interactions with other lighting controls”. This change is to retain the requirements of Section 160.5(b)4F related to daylight responsive controls (was “Automatic Daylighting Controls”).

**Necessity:** The proposed changes to revise and update the daylight responsive controls are reasonably necessary as the changes have been demonstrated to be technically feasible and cost effective on the docket document (Docket document TN#251803, Docket Number 22-BSTD-01). The reorganization of the text with new numbering and other editorial changes with the sign-post language are reasonably necessary to provide a code language easy to read and comprehend.

The proposed change to revise the requirements for long general lighting luminaires and the controls manner are necessary to lessen unnecessary cost burden of any unnecessary luminaire segments shorter than 8 feet. The proposed change to add a subsection of “interactions with other lighting controls” are reasonably necessary to retain the controls interactions requirement from the proposed-to-be-deleted language of Section 160.5(b)4F. The proposed changes are reasonably necessary to ensure 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)4F**

**Specific Purpose:** The specific changes here remove the language regarding manner of a lighting control in interaction with other lighting controls because they are not necessary given there are already requirements in 160.5(b)4 and 110.9 about mandatory indoor lighting controls. The controls interaction language for automatic daylighting controls is retained and moved to the daylighting section (the daylight responsive section), and the requirements about occupancy sensing controls as permitted to be used in the space-conditioning systems remain in the section.

The specific change deletes Section 160.5(b)4F with the exception of the language found in Section 160.5(b)4Fix. The section title is revised to “Occupancy Sensing

Controls Interactions with Space-conditioning Systems”. The numbering of the subsection is also removed as it is not needed.

**Necessity:**

The change to delete a set of code language that serve as clarifications for lighting controls interactions is necessary to remove redundancy in requirements already present in Section 160.5(b)4 and 110.9 regarding lighting controls.

The changes are 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 Table 160.5-B**

**Specific Purpose:** The proposed change is to delete Table 160.5-B.

**Necessity:** The change to delete Table 160.5-B is necessary to consolidate the requirements into an article of Section 160.5(a)1A. 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:** Exception 8 to Section 160.5(c)1

**Specific Purpose:** The specific purpose of the change adds a new exception for luminaires that qualify as exceptions in Part 11 of Title 24. This is to harmonize the exceptions of the two codes, Part 6 and Part 11 of Title 24.

**Necessity:** This change to add a new exception for luminaires that qualify as exceptions is necessary to harmonize between Part 6 and Part 11 of Title 24 for the backlight, uplight and glare requirements for outdoor luminaires.

The changes are 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 160.5(c)2Bii**

**Specific Purpose:** The specific purpose of the change clarifies the outdoor lighting power reduction level of the automatic scheduling controls requirements. The change adds “partially” to the phrase “reducing the outdoor lighting power” and revises the phrase “by at least 50 percent and no more than 90 percent” to “by 50 to 90 percent”.

**Necessity:** This change is needed to clarify the outdoor lighting power reduction level, assisting code users to comprehend the outdoor lighting power reduction level required for the automatic scheduling controls requirements and avoids confusion from the phrase “no more than 90 percent” in the 2022 Energy Code.

The changes are 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 160.5(c)2Ci**

**Specific Purpose:** The specific purpose of the change is to consolidate the subsection within Section 160.5(c)2Ci (formerly, 160.5(c)2Cia) into one article of Section 160.5(c)2Ci. The change adds the outdoor locations (including general hardscape, parking lots, and outdoor canopies) required for motion sensing controls to Section 160.5(c)2Ci and adds the phrase “and for which the bottom of the luminaire is mounted 24 feet above grade or lower”.

The other change to the section deletes the permissible code language about motion sensing controls installation in combination with other outdoor lighting controls.

The specific purpose of the change clarifies the outdoor lighting power reduction level of the motion sensing controls requirements.

The change to Section 160.5(c)2Cii is to add “partially” to the phrase “reducing the outdoor lighting power” and to revise the phrase “at least 50 percent and no more than 90 percent” as “50 to 90 percent”.

The changes in this section delete the permissible requirement about motion sensing controls that may be installed in combination with other outdoor lighting controls.

**Necessity:** The change to consolidate the subsection within Section 160.5(c)2Ci and to add the list of outdoor locations required for motion sensing controls is to produce a code with less subsections and language that is more concise and can be read in a straightforward manner. Also, the change to delete the permissible requirement does not change other mandatory requirements of the section and it does produce a code with more concise language so that the code is easier to navigate and comprehend. The changes are 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 160.5(c)2Cia and 160.5(c)2Cib**

**Purpose:** The specific purpose of the change repeals the motion sensing controls requirement of bilaterally symmetric outdoor wall mounted luminaires (“wall packs”) providing building façade, ornamental hardscape or outdoor dining. The change deletes Section 160.5(c)2Cia and adds “luminaires providing lighting for building façade, ornamental hardscape or outdoor dining” to Exception 2 to Section 160.5(c)2C.

**Necessity:** The change to repeals the motion sensing controls requirement of bilaterally symmetric outdoor wall mounted luminaires (“wall packs”) providing building façade, ornamental hardscape or outdoor dining amends the situation where motion sensing controls are inappropriate for the lighting applications of façade lighting, ornamental hardscape lighting and outdoor dining lighting.

The changes are necessary as luminaires providing lighting for building façade, ornamental hardscape or outdoor dining are different from wall pack luminaires for illuminating building edge parking, walkways, building perimeter identification, entry and exit and security.

Wall pack luminaires is described as “*lighting equipment that is typically attached to a building wall or other vertical exterior surface and that provides illumination for building edge parking, walkways, building perimeter identification, entry and exit and security*”.

(“BBA High Efficiency Wall Pack Lighting Specification & Guidance”, A Better Buildings Alliance (BBA) Project, page 1.) (Link: <https://betterbuildingsolutioncenter.energy.gov/sites/default/files/attachments/high-efficiency-wall-pack-specification.pdf> )

Luminaires providing lighting for building facades serve both functionally and decoratively to aim at the façade and to illuminate the façade without obstruction or interference. As such, façade luminaires are different from wall pack luminaires. Ornamental hardscape lighting is not the same as wall packs and ornamental hardscape lighting is defined in the Energy Code as lighting and luminaires installed outdoor and are rated 50 watts or less that are post-top luminaires, lanterns, pendant luminaires, chandeliers and marquee lighting.

Luminaires providing lighting for outdoor dining serve the outdoor eatery and associated hospitality activities and the luminaires do not serve the same purpose as wall pack luminaires provided, including illumination for parking, walkways, perimeter, identification entry and exit security.

In summary, luminaires providing lighting for building façade, ornamental hardscape or outdoor dining are different from wall pack luminaires for illuminating building edge parking, walkways, building perimeter identification, entry and exit and security.

The changes are 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:** 160.5(c)2Cii

**Purpose:** The specific purpose of the change clarifies the outdoor lighting power reduction level for the motion sensing controls requirements. The change to Section 160.5(c)2Cii adds “partially” to the phrase “reducing the outdoor lighting power” and revises the phrase “at least 50 percent and no more than 90 percent” as “50 to 90 percent”.

**Necessity:** The change to clarify the outdoor lighting power reduction level helps code users comprehend the outdoor lighting power reduction level required for the automatic scheduling controls and avoids confusion of the phrase “no more than 90 percent” from the 2022 Energy Code. The change is necessary to produce a code language easy to read and comprehend.

**Section:** Exception 2 to Section 160.2(c)2C

**Purpose:** The change is to add “luminaires providing lighting for building façade, ornamental hardscape or outdoor dining” to Exception 2 to Section 160.2(c)2C.

**Necessity:** The changes are necessary as luminaires providing lighting for building façade, ornamental hardscape or outdoor dining are different from wall pack luminaires for illuminating building edge parking, walkways, building perimeter identification, entry and exit and security.

The changes are 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 160.6(d)**

**Specific Purpose:** The specific purpose of the change is to remove the note language previously located in Section 160.6(d) as well as to add language in the body of this section to the effect that plug-in strips and other plug-in devices cannot be used to comply with the requirements of Section 160.6(d).

The changes include removal of the word “note” preceding the sentence and removal of the sentence about hardwired power strip controlled by an occupant sensing control. Further, the changes include moving the sentence about “hardwired power strip, plug-in strips and plug-in devices” to the beginning of Section 160.6(d).

**Necessity:** The proposed change to relocate the note previously provided in Section 160.6(d) about “hard-wired power strips, plug-in strips and plug in devices” is necessary to be clear about what is required in this section as providing it in a note could be interpreted as informational and thus not an official part of the code 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 160.6(d)2**

**Specific Purpose:** The specific purpose of the change is to clarify the placement of controlled receptacle and uncontrolled receptacle at the same location. The specific change replaces the word “splitwired” with “multiple” in the phrase so that the phrase reads “multiple receptacle”. The term “multiple receptacle” is defined in California Electrical Code, whereas the term “splitwired receptacle” is not.

**Necessity:** The proposed change of using the term “multiple receptacle” is to avoid any confusion of the term previously used, “splitwired receptacle”. The term “multiple receptacle” is defined in the California Electrical Code as two or more contact devices on the same yoke or strap, and the new term is a more accurate term to be used in Section 160.6(d)2 for the scenario where there are two contact devices. The proposed change is reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code and to ensure and improve the consistency of the Energy Code with other provisions of law, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

### **Section 160.6(d)3**

**Specific Purpose:** The specific purpose of the change is to delete the word “durable” from the marking requirements of controlled receptacles.

Merriam Webster dictionary defines “durable” to mean “able to exist for a long time without significant deterioration in quality or value.” There is no other requirement about the “durable” marking requirement of controlled receptacles in the Energy Code.

**Necessity:** The California Electrical Code requires controlled receptacles to be permanently marked, and aligning with the requirements of the California Electrical Code that controlled receptacles should be permanently marked with the symbol and the word as specified in the Electrical Code. The change is necessary to ensure the

Energy Code and the Electrical Code are in harmony on the marking requirement of controlled receptacles. The proposed change to repeal part of the marking requirements of controlled receptacles is reasonably necessary to ensure and improve the consistency and improve general clarity of the Energy Code with other provisions of law, as directed by California Government Code, Section 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 160.7(b) Pool and Spa Systems

**Specific Purpose:** The specific purpose of this change is to add references to relevant requirements for pool and spa systems installed for public use for internal consistency and clarity.

**Necessity:** These changes are necessary to align with changes made to Section 150.0(p) and to the Title 20 Appliance Standard for the 2025 code cycle regarding requirements specific to pool and spa systems. These terms 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:** 160.8 End of section NOTE

**Specific Purpose:** The authority Sections and the Public Resources Code sections were missing. This section is not considered regulatory text.

**Necessity:** Added to provide clarity of the authority bestowed on the CEC to develop this section of the Energy Code.

**Section:** 160.9(a); (b)-(d)

**Specific Purpose:** Inserted a new subsection at the beginning of Section 160.9 with the specific aim of incorporating general requirements applicable for all electric ready requirements thereby replacing the former section (a). This new requirement ensures the entire building's electrical system have sufficient capacity to supply full rated amperage for all electric ready appliance in accordance with the California Electrical Code. Subsequent sections are renumbered to reflect this change. Additional minor non substantive changes for clarity.

**Necessity:** These changes align with industry best practice and are necessary to ensure the building is fully prepared for future installation of electric appliance. These terms 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:** 160.9(d)2A

**Specific Purpose:** The specific purpose of this change is to remove language related to conductor sizing.

**Necessity:** This language is superseded by the new electric system sizing requirements in 160.9(a), and therefore is no longer needed.

**Section:** 160.9(e)

**Specific Purpose:** The specific purpose of this newly added subsection is to relocate existing electric ready requirements for individual heat pump water heater from Section 160.4(a) to this section and add a new ventilation requirement and designate space for future location of heat pump water heater. The requirement for the 10 American Wire Gauge (AWG) copper branch circuit has been changed to rated 30 amps minimum, similar to changes made to Section 150.0(n)1Ai.

**Necessity:** These changes are necessary to ensure the building is fully prepared for future installation of individual heat pump water heater. The change to 30 amps is necessary to eliminate concerns that the current requirement is overly prescriptive and may interfere with electrical code requirements for branch circuit sizing in some cases. These changes improve clarity of the requirements and thereby enhance code compliance and enforcement of the standards. Making the requirement in terms of ampere instead AWG aligns the electric ready requirements in other parts of the Energy Code.

**Section:** 160.9(f)

**Specific Purpose:** The specific purpose of this change is to add electric ready requirements for central heat pump water heater. This new requirement includes space reserved for heat pump, storage tank equipment and space, condensate drainage piping, and electrical bus.

**Necessity:** These changes are necessary to ensure the building is fully prepared for future installation of central heat pump water heater.

**Section:** 170.1

**Specific Purpose:** The specific purpose of this change is to clarify that energy budgets for multi-family buildings are expressed in terms of Long-Term System Cost in section 170.1(a). Obsolete language stating that energy budgets are expressed in Time Dependent Evaluation is deleted. Inaccurate sections 170.1(b) and 170.1(c) indicating that energy budgets are separately established for the standard design building and the proposed building are eliminated. Explanation of how the energy budget is calculated for the standard design building using Commission-certified compliance software is stated clearly and succinctly in section 170.1.

**Necessity:** These changes are necessary to clarify and make specific how the energy budget is calculated and the use of the terms to be used for establishing energy budgets. These changes align language that has the same purpose in sections 140.1, 150.1(b) and 170.1. and the redundant section 170.1(c) is eliminated.

**Section:** 1170.1(b)2D

**Purpose:** The Thermal Balance Valve requirement was placed in subsection D because subsection D was initially reserved as a placeholder for future requirements and this simplifies the code.

**Necessity:** These changes are essential to make sure that the provisions in the subsection are clear and unambiguous, enabling non-technical readers to easily locate and comprehend the technical requirements.

**Section:** 170.1(b)2F, 170.1(b)2G, and 170.1(b)2J

**Purpose:** The purpose of this change is to remove the performance credit options for multifamily buildings for whole house fans, central fan ventilation cooling systems, and precooling, as they are infrequently installed in multifamily buildings.

**Necessity:** This change is needed to simplify requirements and code language related to multifamily buildings and streamline those requirements where possible.

**Section:** 170.2(a)1A – Exceptions 1 and 2

**Purpose:** The specific purpose of this change is to clarify that when meeting Exception 1 or Exception 2 then the user is not required to comply with Section 170.2(a)1A.

**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:** 170.2(a)3Aii - Exception 5

**Purpose:** The specific purpose of this change is to clarify that the visible transmittance requirements apply to fenestration serving common use areas in all multifamily buildings, and not to fenestration in dwelling units.

**Necessity:** Daylighting controls are not mandated in dwelling units, though they are mandated in other areas of multifamily buildings. This clarification ensures that language matches the intent of the Energy Code's requirements. Increasing a fenestration product's visible transmittance ensures that where daylighting controls exist, that the natural daylight can be maximized so that illumination from installed lights can be reduced and unnecessary consumption of energy can be reduced, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** Section: 170.2(a)3iv - Exception 4

**Purpose:** The specific purpose of this change is to clarify that the visible transmittance requirements apply to fenestration serving common use areas in all multifamily buildings, and not to fenestration in dwelling units.

**Necessity:** Daylighting controls are not mandated in dwelling units, though they are mandated in other areas of multifamily buildings. This clarification ensures that language matches the intent of the Energy Code's requirements. Increasing a fenestration product's visible transmittance ensures that where daylighting controls exist, that the natural daylight can be maximized so that illumination from installed lights can be reduced and unnecessary consumption of energy can be reduced, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 170.2(a)5B

**Purpose:** The specific purpose of this change is to expand the slab floor perimeter requirements to buildings with more than three habitable stories and increase energy efficiency in these buildings when they are constructed with slab-on-grade floors.

**Necessity:** This change is necessary to continue to simplify the multifamily building requirements, removing delineations between low-rise and high-rise multifamily buildings, where requirements are cost effective and technically feasible. Increasing energy efficiency via cost-effective building design standards reduces unnecessary consumption of energy, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** Table 170.2-A

**Purpose:** The specific purpose of this change is to increase the prescriptive requirement for aged solar reflectance to 0.25 and the Solar Reflectance Index (SRI) to 23 for High Performance Attic Option B.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** Table 170.2-A

**Purpose:** The specific purpose of this change is to extend the current aged solar reflectance (ASR=0.63), thermal emittance (TE=0.75), and solar reflectance index (SRI=75) prescriptive standards to Option D (Non-Attic Roofs).

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** Table 170.2-A – Slab Perimeter

**Purpose:** The specific purpose of this change is to expand the slab floor perimeter requirements to buildings with more than three habitable stories and increase energy efficiency in these buildings when they are constructed with slab-on-grade floors.

**Necessity:** This change is necessary to continue to simplify the multifamily building requirements, removing delineations between low-rise and high-rise multifamily buildings, where requirements are cost effective and technically feasible. Increasing energy efficiency via cost-effective building design standards reduces unnecessary consumption of energy, as directed by California Public Resources Code Sections 25213 and 25402

**Section:** Table 170.2-A – F-Factor Note

**Purpose:** The purpose of this change is to add direction in the form of a footnote for designers using alternate depth and R-values when compared to F-factors, to comply with the Energy Code's slab perimeter insulation requirements.

**Necessity:** This change is necessary to improve clarity and consistency of the Energy Code.

**Section:** Table 170.2-A

**Purpose:** The specific purpose of this change is to consolidate the Maximum RSHGC prescriptive standards for Curtain Wall/Storefront fenestration for multifamily buildings four or more habitable stories with the Maximum RSHGC prescriptive standards for multifamily buildings three habitable stories or less.

**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:** Table 170.2-A

**Purpose:** The specific purpose of this change is to consolidate the Maximum RSHGC prescriptive standards for NAFS 2019 Performance Class AW fenestration, for multifamily buildings four or more habitable stories with the Maximum RSHGC prescriptive standards for multifamily buildings three habitable stories or less.

**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:** Table 170.2-A

**Purpose:** The specific purpose of this change is to reduce the Maximum U-factor prescriptive standard for All Other Fenestration to U-0.28 in climate zones 1, 3-5, 11, and 13-16.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** Table 170.2-A

**Purpose:** The specific purpose of this change is to consolidate the Maximum RSHGC prescriptive standards for All Other Fenestration, for multifamily buildings four or more habitable stories with the Maximum RSHGC prescriptive standards for multifamily buildings three habitable stories or less.

**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:** 170.2(c)2C

**Specific Purpose:** The purpose of this change is to add alternative sources of outdoor design conditions from the ASHRAE Handbook, Equipment Volume, Applications Volume and Fundamental Volume. These sources are already used for calculating cooling and heating load under Section 150(h)1. As part of this addition, the term 99.0 percent Heating Dry Bulb is introduced as an alternative to Heating Winter Median of Extreme. This change aligns with similar changes in Sections 140.4(b)3 and 150.0(h)2.

**Necessity:** The necessity for this change is to increase flexibility in mechanical system design by allowing commonly used design conditions from the ASHRAE Handbook,

SMACNA Manual and ACCA Manual J. The addition of “99.0 percent Heating Dry Bulb” is a commonly used industry term from the ASHRAE handbook to calculate heating load. This change is necessary so that wasteful energy consumption is reduced, as directed by PRC 25402, 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:** 170.2(c)3BiallIB

**Specific Purpose:** The purpose of this change is to remove the option that allowed for refrigerant charge verification through the installation of equipment that utilizes a fault indicator display (FID).

**Necessity:** These changes are necessary to clean up the energy code by removing a section that is no longer needed. Various issues associated with FIDs that may impact their effectiveness or reliability are that industry codes are frequently misinterpreted, have limited diagnostic capabilities, sensor accuracy has been poor, are not sensitive enough to detect small leaks or provide timely alerts and suffer from lack of standardization. Removal of the inclusion of the option for refrigerant charge verification through FIDs in the energy code can help improve overall system reliability and safety.

**Section:** 170.2(c)3Biva and b

**Specific Purpose:** The specific purpose of this change is to update point iv including the requirements for balanced ventilation systems with heat/energy recovery ventilation systems to revise the prescriptive requirements in all newly constructed multifamily dwelling units in climate zones 1, 2, 4, 11 through 14, and 16 to use balanced ventilation with an HRV or ERV.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as mandated by California Public Resources Code Sections 25213 and 25402. The measure is cost effective in Climate Zones 1, 2, 4, 11 through 14, and 16 compared to supply-only ventilation or balanced ventilation without an HRV or ERV.

**Section:** 170.2(c)3Bivb

**Specific Purpose:**

The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to better clarify or correct minor issues with the Energy Code. This benefits the CEC by complying with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** 170.2(c)3Bivc

**Specific Purpose:** The specific purpose of this change is 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:** These 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)3Bv

**Specific Purpose:** The specific purpose of this change is 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:** These changes are necessary 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:** Exception 6 to 170.2(c)4Ci

**Specific Purpose:** The specific purpose of the change is to reorganize language from 170.2(c)4N to Exception 6 to 170.2(c)4Ci and to clarify language.

**Necessity:** These non-substantive changes are reasonably necessary to improve clarity on the requirements for the exception to economizing. These revisions were made 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:** Section 170.2(c)4Fv and Exception 2

**Specific Purpose:** The purpose of the proposed updates to this section are to update cooling tower efficiency prescriptive requirements based on climate zone and to remove exceptions for climate zone 1 and 16.

**Necessity:** The efficiency of cooling towers is now based on climate zone, where areas with higher cooling needs are subject to higher efficiencies. The higher cooling loads make it more economically feasible for higher efficiency to be installed. Although the exception for climate zones were removed, the minimum efficiency actually remains the same at the minimum mandatory efficiency of the equipment. Reducing the energy usage of cooling towers will reduce excessive energy use as directed by California Public Resources Code 25213 and 25402.

**Section:** Table 170.2-I

**Specific Purpose:** Add table specifying the cooling tower efficiency based on the climate zone.

**Necessity:** The efficiency of cooling towers is now based on climate zone, where areas with higher cooling needs are subject to higher efficiencies. The higher cooling loads make it more economically feasible for higher efficiency to be installed. Although the exception for climate zones were removed, the minimum efficiency actually remains the same at the minimum mandatory efficiency of the equipment. Reducing the energy

usage of cooling towers will reduce excessive energy use as directed by California Public Resources Code sections 25213 and 25402.

**Section:** 170.2(c)4N

**Specific Purpose:** The specific purpose of the change is to provide clarity on the requirements of Dedicated Outdoor Air System for the different configurations and to simplify code language by moving requirements related to economizing to the economizer section in Exception 6 to 170.2(c)4Ci. This change aligns with the Nonresidential section in 140.4(e) and (p) and removes the greater than 1,000 CFM requirement.

**Necessity:** These changes are reasonably necessary to improve clarity and simplify code language, as directed by California Government Code Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16. These changes provide consistency between the Nonresidential and Multifamily sections, which was the original intent in 2022 code cycle.

**Section:** 170.2(d)

**Specific Purpose:** The specific purpose of this change is to move requirements for recirculation systems to subsection 1 and 2.

**Necessity:** These changes are necessary to 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:** 170.2(d)1 and Exception 1

**Specific Purpose:** The specific purpose of this change is to remove subsection C for gas instantaneous water heaters. New exception 1 allows gas instantaneous water heaters for high-rise multifamily buildings.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 170.2(d)1 Exception 2

**Specific Purpose:** The specific purpose of this change is to add new exception for 120V heat pump water heater in place of 240V for dwelling with 1 bedroom or less.

**Necessity:** These changes are necessary to add flexibility for small dwellings that might not need the capacity of 240V heat pump water heater. This aligns with existing 120V exception for single family buildings.

**Section:** 170.2(d)2

**Specific Purpose:** The specific purpose of this change is to reorganize the section to clearly separate requirements for individual hot water systems and central hot water systems.

**Necessity:** These changes are necessary to 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:** 170.2(d)2A

**Specific Purpose:** The specific purpose of this change is to update the prescriptive requirements for central heat pump water heaters and add new alternative option for NEEA Advanced Water Heater Specification for commercial heat pump water heater Tier 2 or higher. The update limits the prescriptive option to single-pass heat pump water heater, and requirement related to multi-pass systems have been removed. Multi-pass system can continue to meet the prescriptive requirement with the new NEEA alternative option. The primary storage tank plumbing configuration requirement has been removed to allow design flexibility. The requirement for a recirculation system and the exception for 8 or fewer dwellings have been reorganized and merged with the thermostatic mixing valve language in 170.2(d)2D.

**Necessity:** These changes are necessary to add flexibility to the prescriptive central heat pump water heater requirements 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:** 170.2(d)2B

**Specific Purpose:** The specific purpose of this change is to reorganize the requirement for a recirculation system and the exception for 8 or fewer dwellings and merged with the thermostatic mixing valve language in 170.2(d)2D. Additional minor substantive change and section renumbered for clarity.

**Necessity:** These changes are necessary to 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:** 170.2(d)2C

**Specific Purpose:** The specific purpose of this change is to add new prescriptive requirements for hot water distribution piping to be sized in accordance with the California Plumbing Code Appendix M.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 170.2(d)2D

**Specific Purpose:** The specific purpose of this change is to add new prescriptive requirements for thermostatic master mixing valves for central recirculation systems. Additionally, existing requirement for recirculation system and the exception for 8 or fewer dwellings have been reorganized and merged with this section.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** 170.2(d)2G

**Specific Purpose:** The specific purpose of this change is to move recirculation requirements to new subsection 2D.

**Necessity:** These changes are necessary to 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:** Table 170.2-K

**Purpose:** The specific purpose of this change is to update the prescriptive HRV/ERV requirements in climate zones 04 and 15 in table 170.2-K on mechanical component package requirements for Multifamily standard building design requirements.

**Necessity:** These changes are necessary to align with the prescriptive changes of requiring HRV/ERV in climate zone 04 and no longer requiring an HRV/ERV in Climate Zone 15 because the added measures are not cost-effective in Climate Zone 15. These changes are necessary to ensure and improve general clarity and 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:** 170.2(d)2E

**Specific Purpose:** The specific purpose of revision is to renumber section references to reflect changes in Section 170.2(d)2.

**Necessity:** These changes are necessary to 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:** 170.2(d)2G (Section Removed)

**Specific Purpose:** The specific purpose of this change is to move recirculation requirements to new subsection 2D.

**Necessity:** These changes are necessary to 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** 170.2(e)2B

**Specific Purpose:** The specific purpose of the change is to clarify a number of the Power Adjustment Factors (PAF) requirements in Section 170.2(e)2B.

The change is to add a new subsection of Section 170.2(e)2Bix with requirements to specify occupancy sensor control zones in offices greater than 250 square feet to be shown on plans. Occupancy sensor control zone information is essential information to communicate across various parties including designers, installers, building officials and

acceptance testing agents for showing compliance to the occupancy sensing controls in offices greater than 250 square feet.

Another change is to clarify the PAF requirements for the demand responsive controls receiving the PAF. The change is to update, in Section 170.2(e)2Bxib, the reference of the illuminance uniformity requirement to Section 160.5(b)4B (previously it was Table 160.5-B) and to add a clarifying statement in Table 170.2-L about the PAF is not available to demand responsive controls that are mandated under Section 110.12(c). Another change is to clarify in Section 170.2(e)2Bxii the PAFs for clerestory fenestration, horizontal slats or light shelves and the change is to correct the section numbering to Section 170.2(b) (was 140.3(d)).

**Necessity:** The proposed change to require occupancy sensor zones to be shown on plans is to ensure this essential information is documented for showing compliance to the requirements and can be readily communicated across various parties including designers, installers, building officials and acceptance testing agents and the occupancy sensing controls.

The change to clarify the PAF requirements for the demand responsive controls is to ensure the incentivized PAF provisions is allowed for the proper demand responsive controls – those demand responsive controls not mandated under Section 110.12(c). The change to clarify the PAFs for clerestory fenestration, horizontal slats or light shelves is reasonably necessary to correct the section numbering and to improve overall clarity and readability of the 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. Substantive proposed changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

### **Sections 170.2(e)2, 170.2(e)3, and 170.2(e)4**

#### **Specific Purpose:**

The specific purpose of the change is to remove the “Tailored Method” in Section 170.2(e)2, 3, and 4, to revise related references, and to delete Section 170.2(e)3D, 170.2(e)3E, 170.2(e)3F, 170.2(e)4A.v. e, 170.2(e)4B, and Table 170.2-N thru Q – these sections and tables are directly related to the Tailored method.

The other purpose of the change is to retain the additional lighting power allowances of the Tailored method by adding comparable allowances for lighting applications to the Area category method. The change is to add additional lighting power allowances Table 170.2-M for the following applications:

- Conference, multipurpose and meeting area;
- Dining area – bar/lounge and fine dining;
- Main entry lobby;

The additional lighting allowances added for the “qualified lighting systems” column of Table 170.2-M include lighting applications to the following:

- wall display of mounting height less than or equal to 10 feet 6 inches;
- wall display of mounting height between 10 feet 7 inches to 14 feet;
- wall display of mounting height greater than 14 feet;
- floor display of mounting height less than or equal to 10 feet 6 inches;
- floor display of mounting height between 10 feet 7 inches to 14 feet;
- floor display of mounting height greater than 14 feet;
- valuable display case; and
- general lighting in the enclosed space of ceiling height greater than 10 feet.

Further, the change is to remove Table 170.2-N, O, P, and Q which are tables specifying the tailored method allowances or the tailored method calculations, to remove the subsections specifying requirements of the Tailored method and to revise related code language associated with Tailored method.

The other specific purpose of the change is to move Table 170.2-L and Table 170.2-M succeeding the code language mentioning the table.

**Necessity:** The proposed change to remove the Tailored method is to provide a simpler compliance approach through the area category method with similar additional lighting power allowances for specific lighting application that requires additional lighting.

The area category method, with one table of Table 170.2-M, is a much more straight forward and less cumbersome compliance methodology in comparison to the tailored method, which required multiple tables, Table 170.2-N, O, P, and Q, to look up for the tailored lighting calculation process.

The additional lighting power allowances for the applications (functional area types including Conference, Multipurpose and Meeting Area; Bar/Lounge and Fine Dining Area; Main Entry Lobby) are retained and added to the Area Category method as they are the most heavily used for the Tailored Method.

The proposed change to move Table 170.2-L and Table 170.2-M succeeding the code language mentioning the table is to allow the tables easier to look up.

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. Substantive proposed changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** Table 170.2-N, O, P, and Q

**Specific Purpose:** The specific purpose of the change to delete Table 170.2-N, O, P, and Q.

**Necessity:** As the Tailored method is removed, it is no longer necessary to have Table 170.2-N, O, P, and Q which holds information related to Tailored method. The change to delete the tables is necessary to ensure clarity of the code language. This change was necessary to ensure clarity and internal consistency within the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(e)2B

**Specific Purpose:** The specific purpose of the change to this section is to make non-substantive formatting changes to remove unnecessary bolding of text to improve consistency and clarity.

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

**Section:** 170.2(e)2Bix

**Specific Purpose:** The specific purpose of the change to this section is to remove reference to “open plan office” and replace with “large office” to be consistent with Section 140.6(a)2I.

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

**Section:** 170.2(e)2Bixa

**Specific Purpose:** The specific purpose of the change to this section is to remove reference to “open plan” to be consistent with Section 140.6(a)2I.

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

**Section:** 170.2(e)2Diii

**Specific Purpose:** The specific purpose of the change is to delete the tailored method display lighting mounting height lighting power adjustment for the Tailored method.

**Necessity:** This change is necessary to delete the subsections and requirements related to the Tailored method that is to be repealed and the change is to ensure internal consistency within the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** 170.2(e)3Ci

**Specific Purpose:** The specific purpose of the change to this section is to update the section reference from Section 170.2(e)1Ci to Section 170.2(e)4A.

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

**Section:** new 170.2(e)3D (not the existing 170.2(e)3D)

**Specific Purpose:** The specific purpose is to specify that additional lighting power allowances shall not be used for general lighting unless the additional lighting power allowance is specified to be used for general lighting.

The other purpose is to specify “additional lighting power allowances for display; decorative, wall display, floor display, or task” may not be increased as a result of, or otherwise traded off against, decreasing any other lighting power allotment.

**Necessity:** The change to specify that additional lighting power allowances shall not be used for general lighting is necessary to ensure additional lighting power allowances are used only for the qualified lighting. The change to specify “additional lighting power allowances for display; decorative, wall display, floor display, or task” is necessary to align with what is specified in Table 170.2-M for the qualified lighting systems.

**Section:** 170.2(e)4

**Specific Purpose:** The specific purpose of the change is to delete Section 170.2(e)4Ave and 170.2(e)4B – these sections are related to the Tailored method.

**Necessity:** The change was necessary as these sections are directly related to the Tailored method that is to be repealed and removed from the Energy Code and the change is necessary for internal consistency.

**Section:** 170.2(e)4Aii

**Specific Purpose:** The specific purpose of the change to this section is to update the section references, changing Section 170.2(e)1Ci to Section 170.2(e)4A.

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

**Section:** 170.2(e)4Av

**Specific Purpose:** The specific purpose of the change to this section is to update the section references, changing “Section 170.2(e)1Cia through f” to “Section 170.2(e)4Ai through iv.”

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

**Section** 170.2(e)3D

**Purpose:**

The first specific purpose of the change is to delete existing language about Tailored method of Section 170.2(e)3D.

The second specific purpose of the change adds “display, decorative, wall display, floor display, or task” to the list of lighting power allotments (allowances) that may not be increased or traded off when used under the “Area Category Method”.

**Necessity:** The change to add “display, decorative, wall display, floor display, or task” is necessary to align with and ensure consistency with what is specified in Table 140.6-C for the qualified lighting systems. The change is also necessary to retain energy code

stringency for the additional lighting power allowance provided under the area category method in order to reduce the unnecessary consumption of energy.

#### **Section 170.2(e)4AvG**

**Specific Purpose:** The specific purpose of the change is to specify and to retain the requirement about floor display lighting in the new subsection that floor display lighting shall not qualify for wall display lighting power allowances.

**Necessity:** The change to specify the requirement that floor display shall not qualify for wall display allowances is necessary so that wall display allowances is used only for wall display lighting, thereby ensuring the intended energy savings. The change is also necessary to retain energy code stringency for the additional lighting power allowance provided under the area category method in order to reduce the unnecessary consumption of energy.

#### **Section 170.2(e)4Avh**

**Specific Purpose:** The specific purpose is to specify the requirement in the new subsection about the criteria for wall lighting that can be eligible for wall display lighting allowance. The criteria are the same criteria for wall lighting eligible under the Tailored method for wall lighting.

**Necessity:** The change to specify the qualifying criteria for wall lighting that can be eligible for wall display lighting allowance is necessary so that wall display lighting allowance is used only for qualified wall lighting. The change is also necessary to retain energy code stringency for wall display lighting and the additional lighting power allowance provided under the area category method in order to reduce the unnecessary consumption of energy.

#### **Section 170.2(e)4Avi**

**Specific Purpose:** The specific purpose of this change is to specify determination of mounting height of the luminaires based on whether the mounting height is the same for all qualified luminaires or of various mounting height of the qualified luminaires.

**Necessity:** The change to specify methods to determine mounting height of the luminaire is necessary so that there is a consistent manner to determine the mounting height. The change is also necessary to retain energy code stringency for floor display lighting, wall display lighting, and the additional lighting power allowance provided under the area category method in order to reduce the unnecessary consumption of energy.

#### **Section: Table 170.2-M**

##### **Specific Purpose:**

The specific purpose of the change is to correct the following values of Table 170.2-M in order to match the allowance values of Table 140.6-C for similar lighting applications.

The values included:

- Allowed lighting power density for general lighting for "storage", "Health Care / Assisted Living - Nurse's Station", and "Health Care / Assisted Living - Physical Therapy Room".

- Additional Lighting Power Additional Allowance for “Conference, Multipurpose and Meeting Area”.

The specific purpose of the other change is to add a note 3 to Table 140.6-C about MH that it being denoted as the mounting height of the lighting systems.

**Necessity:**

The change to correct the values of Table 170.2-M is necessary in order to ensure the same amount of allowance is provided to the same lighting applications for multifamily building spaces as for nonresidential buildings spaces that have to comply with applicable allowance values specified in Table 140.6-C.

The change is necessary to specify the information pertaining to the table in the energy code so that there is a consistent manner of the determination.

**Section 170.2(e)6 and Table 170.2-S**

**Specific Purpose:** The specific purpose of the change is to clarify how the additional lighting power allowance of specific applications (outdoor lighting) could be applied to each site or to each specific lighting applications. The change is to add the following guidance notes to Table 170.2-S for various lighting applications listed in Table 170.2-S.

- “Per application”; or
- “Per site: wattage allowance per AREA (W/ft<sup>2</sup>). May be used as additional allowance for applicable illuminated hardscape area on the site” for lighting applications of security cameras and special security lighting for retail parking and pedestrian hardscape.”

**Necessity:** The changes are reasonably necessary to clarify how the additional lighting power allowance for specific applications could be properly applied to the site or to the specific applications. The proposed change once adopted can deliver a code language easier to read and comprehend resulting in greater energy savings, consistent with California Public Resources Code, Sections 25213 and 25402. 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 170.2(e)7**

**Specific Purpose:** The specific purpose of the change is to remove legacy types of light sources for sign lighting light sources and the change is to delete the following light sources from subsection 170.2(e)7Bi, ii, iv, and vi:

- high pressure sodium lamps;
- metal halide lamps;
- fluorescent lamps; and
- compact fluorescent lamps.

**Necessity:** The changes are reasonably necessary to update the sign lighting light sources requirements in order to reflect the current availability of sign lighting light sources that the legacy light sources are no longer manufactured or replenished once

the current stock runs out. 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 170.2(e)7 – exception 3**

**Specific Purpose:** The specific purpose of the change is to add an exception for traffic signs not to be obligated to comply with the prescriptive requirements for signs of Section 170.2(e)7.

**Necessity:** The changes are reasonably necessary to align with the existing exception in the Energy Code Section 140.8 – for traffic signs that meet the requirements of the California Title 20 Appliance Efficiency 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: 170.2(f)**

**Specific Purpose:** The purpose of this change is to clarify and reduce compliance ambiguity by establishing a definitive calculation that is applicable for all roofs for determining the PV requirement when solar access roof area (SARA) is limited. The calculation establishes separate requirements for buildings with steep-sloped roofs and for buildings with low-sloped roofs. The calculation is based on the physical dimensions and performance of standard PV arrays rather than on the unfettered discretion of the installer. This corrects the language in the current Energy Code that does not provide a definitive means to determine the PV requirement.

**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. 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: 170.2(f), Equation 170.2-C and Table 170.2-T**

**Specific Purpose:** The purpose of these changes is to avoid the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, and present in a clear and specific manner the PV requirement for low-rise multifamily buildings considering both conditioned floor area and the EER2 of cooling equipment. Revised climate specific coefficients and constants for the equation are provided in changes to Table 170.2-T. The equation is designed to avoid increased energy consumption allowed by the current 2022 Energy Code when heat pumps replace air conditioners. When heat pumps are used that have lower EER2 efficiency than allowed for air conditioners, the higher cooling energy for the building is offset by a corresponding increase in the size of the PV system required for the building. These changes avoid increased energy

consumption through cost-effective PV requirements and clarify and make specific the requirements.

**Necessity:** These changes are necessary to reduce wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Section 25402. 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:** 170.2(f)Biii

**Specific Purpose:** The purpose of this change is to clarify, make specific and reduce administrative burden. Section 170.2(f)Biii is clarified and made more specific by separately addressing compliance with other state building codes as a reason for roof area to not be available, in addition to compliance with local building codes if confirmed by the Executive Director (ED). Compliance with state building codes would not require ED confirmation; compliance with local building codes would continue to require ED confirmation. These changes are necessary to improve clarity and specificity and reduce administrative burden.

**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:** Exception 2 to 170.2(f)

**Specific Purpose:** The purpose of the proposed change is to increase the minimum size of the required PV system to 4kWdc for low-rise multi-family buildings that would qualify for the exception to the PV requirements that generally apply to these building types.

**Necessity:** The change to this exception is necessary to not require low-rise multi-family buildings that have limited energy consumption loads on their electric utility meter to meet the PV requirements because those situations are unlikely to be feasible and cost effective. The limit of 4 kWdc is necessary to ensure consistency with existing and parallel exception for high-rise residential, nonresidential, and hotel/motel buildings. These changes are necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy that the CEC determines to be cost effective consistent with California Public Resources Code Sections 25402 and 25402(b)3.

**Section:** Exception 5 to Section 170.2(f)

**Specific Purpose:** The purpose of this proposed change is to align throughout the Energy Code to use the term “battery energy storage system” instead of “battery storage” that was used in the 2022 Energy Code. That term was changed to clarify that an operative system has multiple components not just batteries and to match up with use of the BESS term within the industry.

**Necessity:** This new term ensures and improves 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:** 170.2(g)

**Specific Purpose:**

The purpose of the proposed changes to this section is to clarify and reduce compliance ambiguity by establishing a specific calculation for determining the Photovoltaic System (PV) requirement when solar access roof area (SARA) is limited. The calculation provides separate requirements for buildings with steep-sloped roofs and for buildings with low-sloped roofs. Additionally, other modifications to the section language were made to provide further compliance clarity and/or correct grammatical errors. These additions correct the language in the current Energy Code that does not provide a definitive means to determine the PV requirement.

**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. 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:** 170.2(g)1C

**Specific Purpose:** The purpose of this change is to clarify, make specific and reduce administrative burden. Section 170.2(g)1C is clarified and made more specific by separately addressing compliance with other state building codes as a reason for roof area to not be available, in addition to compliance with local building codes if confirmed by the Executive Director (ED). Compliance with state building codes would not require ED confirmation; compliance with local building codes would continue to require ED confirmation. These changes are necessary to improve clarity and specificity and reduce administrative burden.

**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:** Equation 170.2-D and Table 170.2-U

**Specific Purpose:** The purpose of the proposed changes to the equation and the table is to revise the PV Capacity Factors used in Equation 170.2-U is to establish the size of the PV systems required for the 2025 Energy Code. The PV system size requirements are increased or clarified for building categories for which there are PV requirements in the 2022 Energy Code or are established for the first time for additional building categories.

**Necessity:** These changes are necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Section 25402.

**Section:** Exception 5 to 170.2(g)

**Specific Purpose:** The purpose of this change is to clarify the exception without using the name “Virtual Net Metering (VNEM),” as that name has been changed by the CPUC to “Virtual Net Billing Tariff (VNBT).” Instead of using a specific name, the change describes the program that provides compensation through virtual energy bill credits. This change also clarifies that the exception does not apply where the Commission has approved a community solar program. The change also clarifies that the exception applies to high-rise multi-family buildings.

**Necessity:** These changes are necessary to ensure that the exception applies to a particular compensation approach, rather than to a named program. These changes also 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(h) Equations 170.2-E, 170.2-F and 170.2-G and Table 170.2-V

**Specific Purpose:** The energy storage system kWh sizing equations 170.2-E and 170.2-F have been updated to be a function of conditioned floor area, the capacity factor B, which has been updated as required for cost-effectiveness, in addition to roundtrip efficiency. Equation 170.2-F has been introduced to calculate the energy storage sizing when SARA restricts the PV sizing with which the energy storage system will be matched. For Equation 170.2-G, a factor C was included in the equation for the 2022 Energy Code; that factor was merely the capacity factor, factor B, divided by 4 to capture the expected time (4 hours) for the battery to discharge. The revised equation eliminates factor C and instead is based on factor B expressly divided by 4. That clarifies and eliminates unnecessary complexity in the equation. The number of building categories in table 170.2-V have increased consistent with revised cost-effectiveness analysis. The changes to these equations and tables contribute directly to reducing building energy consumption, as well as improving the clarity of the Energy Code.

**Necessity:** These changes are necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy as directed by California Public Resources Code Section 25402. Additionally, these changes 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:** Exception to 180.1(a)1

**Specific Purpose:** The specific purpose of this change is to amended the language for clarity without changing the intent.

**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:** Exception to 180.1(a)2

**Specific Purpose:** The specific purpose of this change is to add an exception in the mechanical ventilation for indoor air quality section to specify dwelling unit air leakage test is not required for additions.

**Necessity:** These changes are necessary as the language update does not make any changes to Section 180.1(a)2. Adding this exception would help clarify that compartmentalization is not required for additions to ensure and improve the general clarity and internal consistency of the Energy code.

**Section:** Exception to 180.1(a)2Aii

**Specific Purpose:** The specific purpose of this change is to add an exception to Section 180.1(a)2Aii that specifies new, or replacement ventilation type shall be supply, balanced, or the existing ventilation type when additions are incorporated to an existing dwelling unit of which conditioned floor area is 1,000 square feet.

**Necessity:** These changes are necessary as the language update does not make any changes to additions and specifying in an exception that mechanical ventilation systems shall be supply, balanced or the existing ventilation type being use would improve general clarity and maintain 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:** 180.1(b)1 and 180.1(b)2

**Specific Purpose:** The specific purpose of this change is to add language to more accurately and directly describe the energy budget for additions to multifamily buildings, clearly identifying that the energy budget is expressed in terms of Long-term System Cost, rather than direct readers to another section.

**Necessity:** This change is needed to improve overall clarity and readability of the Energy Code.

**Section:** 180.2(b)1A

**Specific Purpose:** The specific purpose of this change is to correct a typo in the 2022 Energy Code. Where the prescriptive standard currently states “the requirements of i and iii below apply” it should have said “the requirements of i through iii below apply.”

**Necessity:** This change is necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** Table 180.2-B

**Specific Purpose:** The specific purpose of this change is to remove the RSHGC requirement for Curtainwall/Storefront/Window Wall fenestration in climate zones 1, 3,

5, and 16 where modeling has shown that it is actually advantageous to have a higher RSHGC due to the larger heating loads in those climate zones.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402. As well as improve the general clarity and internal consistency of the Energy Code.

**Section:** Table 180.2-B

**Specific Purpose:** The specific purpose of this change is to remove the RSHGC requirement for NAFS 2017 Performance Class AW – Fixed fenestration in climate zones 1, 3, 5, and 16 where modeling has shown that it is actually advantageous to have a higher RSHGC due to the larger heating loads in those climate zones.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402. As well as improve the general clarity and internal consistency of the Energy Code.

**Section:** Table 180.2-B

**Specific Purpose:** The specific purpose of this change is to remove the RSHGC requirement for NAFS 2017 Performance Class AW – Operable fenestration in climate zones 1, 3, 5, and 16 where modeling has shown that it is actually advantageous to have a higher RSHGC due to the larger heating loads in those climate zones.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402. As well as improve the general clarity and internal consistency of the Energy Code.

**Section:** Table 180.2-B

**Specific Purpose:** The specific purpose of this change is to reduce the prescriptive standard maximum U-factor for All Other Windows and Glazed Doors to U-0.28 in climate zones 1, 3-5, 11, and 13-16, and thus decrease building energy consumption.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402.

**Section:** Table 180.2-B

**Specific Purpose:** The specific purpose of this change is to remove the RSHGC requirement for All Other Windows and Glazed Doors in climate zones 1, 3, 5, and 16 where modeling has shown that it is actually advantageous to have a higher RSHGC due to the larger heating loads in those climate zones.

**Necessity:** These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code, Sections 25213 and 25402. As well as improve the general clarity and internal consistency of the Energy Code.

**Section:**180.2(b)2AivbIIB

**Specific Purpose:** The purpose of this change is to remove the option that allowed for refrigerant charge verification through the installation of equipment that utilizes a fault indicator display (FID).

**Necessity:** These changes are necessary to clean up the energy code by removing a section that is no longer needed. Various issues associated with FIDs that may impact their effectiveness or reliability are that industry codes are frequently misinterpreted, have limited diagnostic capabilities, sensor accuracy has been poor, are not sensitive enough to detect small leaks or provide timely alerts and suffer from lack of standardization. Removal of the inclusion of the option for refrigerant charge verification through FIDs in the energy code can help improve overall system reliability and safety.

**Section:** Exception 2 to Section 180.2(b)2Bi

**Specific Purpose:** The specific purpose of this change is rewriting this language to be clearer that interlocks are not required on existing windows that did not previously have interlocks when replacing the space conditioning system. As previously written, it did not explicitly address the applicability of these requirements to existing buildings. This change is not substantive.

**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, this new term ensures and improves the general clarity and internal consistency of the Energy Code.

**Section:** Exception 3 to 180.2(b)2Bi

**Specific Purpose:** The specific purpose of this change is to make a correction and clarification to the 2022 Energy Code language. This change seeks to clarify that the exception to the economizer requirement is triggered only when applicable to systems that are a split packaged AC and with a cooling capacity lower than 54,000 Btu/h.

**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, this new term ensures and improves 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:** Exception 1 to 180.2(b)2Biib

**Specific Purpose:** The purpose of this change is to delete HERS field verification and diagnostic testing and replace it with acceptance testing.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by a HERS rater. The change is necessary because this is duplicative and redundant as written in the

2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the HERS program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in multifamily common areas is under the scope of the ATTCP program. Removing the HERS field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** Exception 2 to 180.2(b)2Biib

**Specific Purpose:** The specific purpose of this change is to modify the language for clarity without changing the intent.

**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:** 180.2(b)2Biic and 180.2(b)2Biiib

**Specific Purpose:** The purpose of this change is to delete HERS field verification and diagnostic testing and replace it with acceptance testing.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by a HERS rater. The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the HERS program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in multifamily common areas is under the scope of the ATTCP program. Removing the HERS field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** 180.2(b)2Biiib

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to better clarify or correct minor issues with the Energy Code. This benefits the CEC by complying with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** 180.2(b)4A

**Specific Purpose:** The specific purpose of this change is to remove an unnecessary reference to Table 160.5-A, as it is duplicative. The language in this section already directs the reader to section 160.5(a), where Table 160.5-A resides.

**Necessity:** This change is necessary to increase clarity and overall readability of the Energy Code.

**Section:** Exception to 180.2(b)5

**Specific Purpose:** The specific purpose of this change is to add an exception in the mechanical ventilation for indoor air quality section to specify dwelling unit air leakage test is not required for alterations.

**Necessity:** These changes are necessary as the language update does not make any changes to Section 180.2(b)5. Adding this exception would help clarify that compartmentalization is not required for alterations to ensure and improve the general clarity and internal consistency of the Energy code.

**Section:** Exception to 180.2(b)5A

**Specific Purpose:** The specific purpose of this change is to add an exception to Section 180.2(b)5A that specifies new, or replacement ventilation type shall be supply, balanced, or the existing ventilation type being replaced.

**Necessity:** These changes are necessary as the language update does not make any changes to alterations and specifying in an exception that new, or replacement ventilation type shall be supply, balanced or the existing ventilation type being use would improve general clarity and maintain 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:** 180.2(b)5Bia

**Specific Purpose:** The specific purpose of this change is to add a requirement for whole-dwelling unit ventilation strategy that specifies the altered ventilation system shall be supply, balanced, or the existing ventilation type being altered.

**Necessity:** These changes are necessary to align with the updated language in Section 160.2(b)2Aivb that specifies all new construction multifamily dwelling units shall use the same whole-dwelling unit ventilation system type that must be balanced or supply ventilation and pass compartmentalization testing while exempting existing ventilation type that is being altered because the language update does not make changes to additions and alterations. This requirement ensures and improves general clarity and maintains the internal consistency of the Energy Code. These changes are consistent with Public Resources Codes §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section** 180.2(c)

**Specific Purpose:** The purposed added language to this section is to make it accurate and clear that the energy budget is expressed using the term Long-term System Cost.

**Necessity:** This clarification is necessary to specify how the energy budget is calculated and the use of the terms to be used for establishing energy budgets. These changes align language that is used other sections of the Energy Code.

**Section:** Table 180.2-A

**Specific Purpose:** The goal is to eliminate the distinction between three-story and less vs. four-story or greater in a multifamily building. Also, skylight with a U-factor of 0.3 is not easily accessible.

**Necessity:** To reduce the confusion for builders and designers and to reduce the ambiguity of installing a skylight in the multifamily building.

**Section:** Table 180.2-E

**Specific Purpose:** The specific purpose of the change is to clarify the reference code sections in Table 180.2-E for indoor lighting system alterations for common use areas of multifamily buildings. The change is to revise the reference code sections for demand responsive controls, and to add “110.12(a) and 110.12(b)”, and to delete “160.5(b)4E”. The other specific purpose of the change is to clarify the automatic shutoff controls requirements specified in Table 180.2-E. The change is to add “except for 160.5(b)4Cvi.b” to the row of “Automatic Shut Off Controls 160.5(b)4Cvi” and on the rightmost cell of Table 180.2-E.

**Necessity:** The change to revise the reference code sections for demand responsive controls is to provide more accurate information so that the code is easier to navigate and comprehend.

The change to add the information about the automatic shutoff controls requirements for the alterations is to ensure the automatic shutoff control requirements specified in Table 180.2-E align with the requirements specified in Table 141.0-F (Control Requirements for Indoor Lighting System Alterations).

**Section:** Appendix 1-A General comment

**Purpose:** The purpose of this change is to accurately identify all of the documents incorporated by reference in Part 6 and update to the most current version.

**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.

**Section:** Appendix 1-A

**Specific Purpose:** The specific purpose of this addition is to provide a complete reference to ASHRAE Guideline 36 High-Performance Sequences of Operation for HVAC Systems (2021).

**Necessity:** The addition is necessary to ensure that the users can reference the most current Guideline 36 publication from ASHRAE.

**Section:** Appendix 1-A

**Purpose:** The purpose of this change is to accurately identify all of the documents incorporated by reference in Part 6, including *ANSI/AMCA 220 Laboratory Methods of Testing Air Curtain Units for Aerodynamic Performance Rating (2021)*.

**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, and location of the documents incorporated by reference into the Standards or Reference Appendices.

**Section:** Appendix 1-A

**Specific Purpose:** The specific purpose of the change is to add the following documents of the Illuminating Engineering Society.

- ANSI/IES LM-51-20 Approved Method: Electrical and Photometric Measurement of High Intensity Discharge Lamps (2020)
- ANSI/IES LM-66-20 Approved Method: Photometry of induction lamps (2020)

The specific purpose of the change is to delete the following documents of the Illuminating Engineering Society: IES LM-9, IES LM-20, IES LM-45, IES LM-46, IES LM-80, and IES TM-21.

**Necessity:** The change to add the IES documents, including ANSI/IES LM-51-20 and LM-66-20, is reasonably necessary as they are the references for the testing procedures of Joint Appendix JA8 of the Energy Code.

The change to delete the IES documents is reasonably necessary as the documents are related to legacy light sources or test methods that are no longer required in the Energy Code.

## REFERENCE APPENDICES

**Section:** JA1 AMCA definition

**Specific Purpose:** The specific purpose of this change is to add a definition for the Air Movement and Control Association (AMCA) document 220, titled “Laboratory Methods of Testing Air Curtain Units for Aerodynamic Performance Rating”.

**Necessity:** This change is reasonably necessary to ensure that projects using the exception for air curtains are tested in accordance with a specific and consistent test methodology – AMCA 220.

**Section:** JA1 ANSI/AMCA 220 definition

**Purpose:** The specific purpose of adding a definition for *ANSI/AMCA 220 220 Laboratory Methods of Testing Air Curtain Units for Aerodynamic Performance Rating (2021)* to the Definitions section is to provide a clean and specific definition for this technical term, which is used within other updates to Part 6, aligned with the use of the term where it is proposed to occur within the Energy Code. This includes the added definition for new industry standards documents that are incorporated by reference into the Energy Code.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** ANSI/ASAS12.55-2012

**Specific Purpose:** The specific purpose of the change is to add the following documents of the American National Standards Institute (ANSI).

- ANSI/ASA S12.55-2012 Acoustics - determination of sound power levels and sound energy levels of noise sources using sound pressure - precision methods for anechoic rooms and hemi-anechoic rooms.

**Necessity:** The change to add the ANSI documents, ANSI/ASA S12.55-20212, is reasonably necessary as they are the references for the testing procedures of Joint Appendix JA8 of the 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:** JA1 Approved definition

**Specific Purpose:** The purpose of this change is to aid in the implementation of new regulations in Title 24, Part 1, Section 10-103.3 by updating several definitions.

**Necessity:** This change is necessary to help implement an improved Energy Code Compliance program. The updated definition "Approved," grants responsibilities and requirements to each ECC participant, increasing the robustness of the overall program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** JA1 Battery System, Stationary Storage and Battery Energy Storage System definition

**Specific Purpose:** This definition is being merged with the Energy Storage System (ESS) and renamed to Battery Energy Storage System (BESS). All Standards references to battery storage system and energy storage system are also being updated to BESS to reflect this change. This definition is added to align with changes with the same definition in Part 6.

**Necessity:** This change is necessary to align with the more up-to-date industry terminology for electro-chemical battery storage systems. Currently the only type of ESS recognized by the Standard is BESS, this change clarifies the intent of the Standard and ensure that the terms used within the regulations will have clear and unambiguous meaning to readers, including the public, and particularly to the persons and organizations affected by these regulations.

**Section:** JA1 Compliance Cycling Capacity definition

**Specific Purpose:** The specific purpose of this change is to add a definition for compliance cycling capacity for BESS.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA1 Cycling Capacity definition

**Specific Purpose:** The specific purpose of this change is to add a definition for cycling capacity for BESS.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA1 EER and HSPF definitions

**Specific Purpose:** Add EER2 and HSPF2 to definitions referenced in the Energy Code.

**Necessity:** In residential buildings, space conditioning efficiency metrics were updated to EER2/SEER2/HSPF2. EER and HSPF definitions were included in JA1 and referenced the Energy Code. EER2 and HSPF2 were also added and reference back to the Energy Code for consistency and clarity.

**Section:** JA1 Energy Code Compliance Program definition

**Specific Purpose:** The purpose of this change is to aid in the implementation of new regulations in Title 24, Part 1, Section 10-103.3 by adding several new definitions.

**Necessity:** This change is necessary to help implement an improved Energy Code Compliance program. The new definitions (ECC-Provider, ECC-Rater, and ECC-Rater Company) assign separate responsibilities and requirements to each ECC participant, increasing the robustness of the overall program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** JA1 Field-Assembled BESS definition

**Specific Purpose:** The specific purpose of this change is to add a definition for compliance cycling capacity for BESS.

**Necessity:** This new definition is necessary to distinguish BESS that are field assembled, with combination of components installed to operate as a system, from integrated BESS. These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA1 Ground Source Heat Pump definition

**Specific Purpose:** Add EER2 and HSPF2 to definitions referenced in the Energy Code.

**Necessity:** In residential buildings, space conditioning efficiency metrics were updated to EER2/SEER2/HSPF2. EER and HSPF definitions were included in JA1 and referenced the Energy Code. EER2 and HSPF2 were also added and reference back to the Energy Code for consistency.

**Section:** JA1 HERS/HERS-Provider/HERS-Provider Data Registry/HERS-Rater definition

**Specific Purpose:** The purpose of this change is to remove definitions associated with the Home Energy Rating System (HERS) program from within the Energy Code.

**Necessity:** This change is necessary to help implement an improved Energy Code Compliance program. This benefits the CEC in accomplishing its responsibility under Statute 25402.

**Section:** JA1 IES-LM-9 definition

**Specific Purpose:** The purpose of this change is to remove the IES-LM-9 definition.

**Necessity:** This change is necessary as the IES publication no longer being referenced in Joint Appendix.

**Section:** JA1 IES-LM-20 definition

**Specific Purpose:** The purpose of this change is to remove the IES-LM-20 definition.

**Necessity:** This change is necessary as the IES publication no longer being referenced in Joint Appendix.

**Section:** JA1 IES-LM-45 definition

**Specific Purpose:** The purpose of this change is to remove the IES-LM-45 definition.

**Necessity:** This change is necessary as the IES publication no longer being referenced in Joint Appendix.

**Section:** JA1 IES-LM-46 definition

**Specific Purpose:** The purpose of this change is to remove the IES-LM-46 definition.

**Necessity:** This change is necessary as the IES publication no longer being referenced in Joint Appendix.

**Section:** JA1 IES-LM-80 definition

**Specific Purpose:** The purpose of this change is to remove the IES-LM-80 definition.

**Necessity:** This change is necessary as the IES publication no longer being referenced in Joint Appendix.

**Section:** JA1 IES-TM-21 definition

**Specific Purpose:** The purpose of this change is to remove the IES-TM-21 definition.

**Necessity:** This change is necessary as the IES publication no longer being referenced in Joint Appendix.

**Sections:** JA1 Independent Identity definition

**Specific Purpose:** The purpose of this change is to help clarify the implementation of the new section in the Energy Code, Title 24, Part 1, Section 10-103.3. This is accomplished by replacing "HERS" with "ECC-" or "field verification and diagnostic testing" where appropriate and replacing the reference to the HERS regulations (Title 20) with a reference to Title 24, Part 1, Section 10-103.3. These changes appear throughout the Parts 1 and 6 (including the Reference Appendices: Joint Reference Appendix, Residential Reference Appendix, and Nonresidential Reference Appendix) of the Energy Code and 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 with the new section, Title 24, Part 1, Section 10-103.3. This change is consistent with the requirements of California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** JA1 Integrated BESS definition

**Specific Purpose:** The specific purpose of this change is to add a definition for Integrated BESS.

**Necessity:** This new definition is necessary to distinguish integrated BESS, that contains battery energy storage and inverter into a single model, from field-assembled BESS, these changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** ISO 3745:2012

**Specific Purpose:** The specific purpose of the change is to add the following document from the International Organization for Standardization (ISO).

- ISO 3745:2012 Acoustics - determination of sound power levels and sound energy levels of noise sources using sound pressure - precision methods for anechoic rooms and hemi-anechoic rooms

**Necessity:** The change to add the ISO document, ISO 7574-4 B.2.1: 1985 is reasonably necessary as it is the references for the testing procedures of Joint Appendix JA8 of the 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:** ISO 7574-4:1985

**Specific Purpose:** The specific purpose of the change is to add the following document from the International Organization for Standardization (ISO).

- ISO 7574-4:1985. Acoustics - statistical methods for determining and verifying stated noise emission values of machinery and equipment, International Organization for Standardization, Geneva, Switzerland.

**Necessity:** The change to add the ISO document, ISO 7574-4 B.2.1: 1985, is reasonably necessary as it is the references for the testing procedures of Joint Appendix JA8 of the 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:** JA1 - Long Term System Cost definition

**Purpose:** The specific purpose of adding a definition for the term Long-term System Cost to the Definitions section is to provide clean and specific definition for this technical term, which is used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code. This includes the added definition for new industry standards documents that are incorporated by reference into later portions of the Energy Code.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA1 Low-Sloped Roof definition

**Specific Purpose:** Fixing the inconsistency in the definitions between what it is in the Reference Appendices and the Energy Code.

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

**Section:** JA1 Reserve Level definition

**Specific Purpose:** The specific purpose of this change is to add a definition for Reserve Level for BESS.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA1 Usable Capacity definition

**Specific Purpose:** The specific purpose of this change is to add a definition for Usable Capacity for BESS.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA3.1

**Specific Purpose:** The purpose of this change is to update the scope and purpose of JA3 to reflect the terminology changes in energy budget from Time Dependent Valuation to Long-term System Cost.

**Necessity:** This change is necessary to reflect the terminology update in energy budget from Time Dependent Valuation to Long-term System Cost and ensure that provisions in subsequent sections are clear and unambiguous.

**Section:** JA3.1.1

**Specific Purpose:** The specific purpose of this change is to update terminology references from Time Dependent Valuation to Long-term System Cost. Reference to a 15-year nonresidential dataset is removed. Additional minor edits for clarity.

**Necessity:** This change is necessary to reflect the terminology update in energy budget from Time Dependent Valuation to Long-term System Cost and ensure that provisions in subsequent sections are clear and unambiguous. Long-term System Cost is similar to Time Dependent Valuation in that it varies for every hour of the year to capture the value of energy and emissions at different times of the day and at different times of the year. Long-term System Cost is a cost metric that represents long-term marginal costs to the energy system over 30-years through which we hope to better account for, and relay to the public, the long-term dollar cost impact to California's energy system. A 15-year nonresidential dataset is no longer used, and instead will use 30-year dataset similar to single-family and multi-family.

**Section:** JA3.1.2

**Specific Purpose:** The specific purpose of this change is to add description of the Source Energy metric.

**Necessity:** This change is necessary to reflect an update in terminology related to energy budget from Time Dependent Valuation to Long-term System Cost and ensure that provisions in subsequent sections are clear and unambiguous.

**Section:** JA3.2

**Specific Purpose:** The specific purpose of this change is to reflect the changes of Tables 3-1 to 3-6.

**Necessity:** This change is necessary to reflect an update in terminology related to energy budgets from Time Dependent Valuation to Long-term System Cost, and ensure that provisions in subsequent sections are clear and unambiguous

**Section:** JA3 Table 3-1, Table 3-2, Table 3-3, Table 3-4, Table 3-5, Table 3-6

**Specific Purpose:** Tables 3-1 to 3-6 were repealed and replaced. The statistical data for Time Dependent Valuation has been removed and replaced with statistical data for Long-term System Cost and Source Energy. The data includes the statistical summary of Long-term System Cost and Source Energy factors for electricity, natural gas, and

propane. Each table has the annual minimum, maximum, and average for each climate zone and building type.

**Necessity:** This change is necessary to reflect the update in terminology related to energy budgets from Time Dependent Valuation to Long-term System Cost and Source Energy, and ensure that provisions in subsequent sections are clear and unambiguous

**Section:** JA6.3

**Specific Purpose:** Language was cleaned up to make it clearer that certification must be done by providing a certification letter to the CEC.

**Necessity:** The certification letter identified in JA6.3 was originally written as an option. However, since the CEC only allows for certification through this letter process and certification is a requirement, the language for the identified certification letter was revised to be a requirement and not an option. There was also slight cleanup to identify that the requirements in Section 120.2(i)1-120.2(i)7 must be certified. Section 120.2(i)8 is the requirement for certification so is not actually certified in the letter.

**Section:** JA7.2 Definitions: ENERGY CODE COMPLIANCE (ECC), ECC-PROVIDER, ECC-RATER, AND ECC-RATER COMPANY

**Specific Purpose:** The purpose of this change is to aid in the implementation of new regulations in Title 24, Part 1, Section 10-103.3 by adding several new definitions.

**Necessity:** This change is necessary to help implement an improved Energy Code Compliance program. The new definitions (Energy Code Compliance (ECC), ECC-Provider, ECC-Rater, and ECC-Rater Company) assign separate responsibilities and requirements to each ECC participant, increasing the robustness of the overall program so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** JA7.2 Definitions.

**Specific Purpose:** The purpose of this change is to remove definitions associated with the Home Energy Rating System (HERS) program from within the Energy Code.

**Necessity:** This change is necessary to help implement an improved Energy Code Compliance program. The change clarifies the ECC Program is separate from the previous program. The name clarification may improve the reputation of the program and encourage widespread program adoption. Widespread adoption and broad use of the program would help to accurately determine building energy efficiency standard compliance so that wasteful energy consumption is reduced, as directed by PRC 25402.

**Section:** JA7.2 Definitions: TRIENNIAL CODE CYCLE

**Specific Purpose:** The purpose of this change is to aid in the implementation of new regulations in Title 24, Part 1, Section 10-103.3 by adding a new definition.

**Necessity:** This change (adding a definition of the Triennial Code Cycle) is necessary to help implement an improved Energy Code Compliance program. The ECC-Provider may submit an updated application that responds to a newly adopted Energy Code

during the triennial code cycle. This definition helps to allow a more streamline application process for existing ECC-Providers. This benefits the CEC in accomplishing its responsibility under Statute 25402.

**Section:** JA7.2 Definitions: REGISTRATION

**Specific Purpose:** Revised definition to reflect repealed regulation. The definition is no longer accurate and must be revised to reflect the current regulations.

**Necessity:** This revision is necessary because the Energy Code relies on language given in California Code of Regulations Sections 22000 through 22005. The California Secretary of State adopts definitions and standards for digital signatures that are applied to electronic documents used for administering State programs. Document registration is such an application. Until 2020, the Secretary of State approved and publicly listed certificate authorities that were capable of issuing certificates that met digital signature requirements. In late 2020, California Code of Regulations section 22004 "Provisions for Adding New Technologies to the List of Acceptable Technologies" was repealed. The remaining sections still apply, so the definition for "Registration" must omit the list of approved certificated authorities and acknowledge the remaining requirements.

**Section:** JA7.3

**Specific Purpose:** The specific purpose of this change is to clarify what is required with electronic signatures and dates.

**Necessity:** This change is necessary to increase clarity and understanding of the intent of these requirements.

**Section:** JA7.5.6.3

**Specific Purpose:** The purpose of this addition is to establish the basic requirements for recording photographic evidence that is associated with a registered compliance document.

**Necessity:** This addition is necessary to ensure that there are minimum required elements present in photographs that are used as evidence of field verifications or diagnostic testing services performed by ECC-Raters or by ECC-Providers when performing a quality assurance audit. Photographic evidence has been a common (voluntary) addition to the ECC Program for several years, but the photographs used often show only generic elements that can be easily modified through existing software. There have been several cases investigated by CEC staff where photographs were offered as evidence only to discover that these were taken elsewhere and doctored to appear to show compliance. These minimal requirements will help prevent such doctoring from successfully evading Energy Code compliance. This benefits the CEC in accomplishing its responsibility under Statute 25402.

**Section:** JA7.6.2.2.4 Digital Signatures

**Specific Purpose:** Revise description of requirements for the registration provider's digital signature. Instead of requiring the services of a Secretary of State-approved certificate authority, the provider must comply with Section 22001 " Digital Signatures Must Be Created by an Acceptable Technology." Full requirements are given in California Code of Regulations Sections 22000 through 22005.

**Necessity:** Correcting this language maintains the intended requirements for digital signatures applied to document registration and removes the outdated requirement.

**Section:** JA8.3.1

**Specific Purpose:** The specific purpose is to update the light source types listed in the luminous efficacy test in JA8 and the change is to remove the incandescent lamp types (including incandescent and incandescent reflector lamps) and the fluorescent lamp types (general service fluorescent lamps; fluorescent lamps that are not medium base compact fluorescent lamps and general service fluorescent lamps) listed as item a, b, c and d in Section JA8.3.1. These general service lamp types are banned for the sales in California. The other change is to renumber the remaining light sources typed.

**Necessity:** The change to remove the incandescent light sources and the fluorescent light sources is to reflect the federal law (DOE new final rules related to general service lamps as published in the Federal Register, 10 CFR Parts 429 and 430, and Federal Register volume number 87FR53618) that bans the manufacturing and sale of general service incandescent lamps after July 2023 and the California law (AB-2208) that bans the sales and distribution of fluorescent lamps as a new manufactured product after 2024 and 2025 - banning screw and bayonet base type compact fluorescent (CFL) lamps after January of 2024 and banning pin-base type CFL) and linear fluorescent lamps after January of 2025.

**Section:** JA8.3.3

**Specific Purpose:** The specific purpose is to delete reference to the ENERGY STAR Program Requirements for Lamps 2.1 and to add the reference to Section JA8.7 for start time test method.

**Necessity:** The change to delete reference to the ENERGY STAR program and to add reference to JA8.7 is reasonably necessary to reflect the sunset of the ENERGY STAR Program for lamps and luminaires effective December 31, 2024. The change is necessary to ensure details of the start time test method can instead be found in Section JA8.7.

**Section:** JA8.3.4

**Specific Purpose:** The specific purpose is to update the type of light sources listed in the color characteristics test of Joint Appendix JA8 and the change is to remove "incandescent and halogen reflector lamps", "incandescent non-reflector lamps", "single-ended compact fluorescent lamps" and "fluorescent lamps that are not single-ended compact fluorescent lamps" from Section JA8.3.4. These general service lamp types are banned for the sales in California. The other change is to renumber the remaining light sources typed.

**Necessity:** The change to remove the incandescent light sources and the fluorescent light sources is to reflect the federal law (DOE new final rules related to general service lamps as published in the Federal Register, 10 CFR Parts 429 and 430, and Federal Register volume number 87FR53618) that bans the manufacturing and sale of general service incandescent lamps after July 2023 and the California law (AB-2208) that bans the sales and distribution of fluorescent lamps as a new manufactured product after 2024 and 2025 - banning screw and bayonet base type compact fluorescent (CFL) lamps after January of 2024 and banning pin-base type CFL) and linear fluorescent lamps after January of 2025.

**Section:** JA8.3.7

**Specific Purpose:** The specific purpose is to delete reference to the ENERGY STAR Program Requirements for Lamps Version 2.1 and to add the reference to Section JA8.8 for (audible) noise test method.

**Necessity:** The change to delete reference to the ENERGY STAR program and to add reference to JA8.8 is reasonably necessary to reflect the sunset of the ENERGY STAR Program for lamps and luminaires effective December 31, 2024. The change is necessary to ensure details of the (audible) noise test method can instead be found in Section JA8.8.

**Section:** JA8.4

**Specific Purpose:** The specific purpose is to update the reference in Joint Appendix JA8, and the change is to remove the text “Table 150.0-A” from the list of compliance for the light source to certify under JA8.

**Necessity:** The change to remove the text “Table 150.0-A” is reasonably necessary as the table is proposed to be removed from the Energy Code and the table is no longer a part of the Code. The change is necessary to ensure the code language is up to date.

**Section:** JA8.6 - Table JA-8

**Specific Purpose:** The specific purpose is to update the light source types listed in data reporting of Joint Appendix JA8 and the change is to delete “fluorescent” and “incandescent” as listed in Table JA-8. These general service lamp types (“light source type”) are banned for the sales in California.

**Necessity:** The change to remove the incandescent light sources and the fluorescent light sources is to reflect the federal law (DOE new final rules related to general service lamps as published in the Federal Register, 10 CFR Parts 429 and 430, and Federal Register volume number 87FR53618) that bans the manufacturing and sale of general service incandescent lamps after July 2023 and the California law (AB-2208) that bans the sales and distribution of fluorescent lamps as a new manufactured product after 2024 and 2025 - banning screw and bayonet base type compact fluorescent (CFL) lamps after January of 2024 and banning pin-base type CFL) and linear fluorescent lamps after January of 2025.

**Section:** JA8.7

**Specific Purpose:** The specific purpose is to add a new subsection for start time test method. The new subsection contains the start time test method requirements based on the previously referenced document, “ENERGY STAR program Test Method – Start Time”.

**Necessity:** The change to add a new subsection for start time test method is reasonably necessary to specify the start time test method. The start time test method is published under the ENERGY STAR program for lamps and luminaires (also known as "ENERGY STAR specifications for lamps and luminaires") and the program has been announced to be sunset effective December 31, 2024. The change is necessary to ensure details of the start time test method are retained in Joint Appendix JA8.

#### **Section:** JA8.8

**Specific Purpose:** The specific purpose is to add a new subsection for noise test method. The new subsection contains the noise test method requirements based on the previously referenced document, “ENERGY STAR program Test Method – Noise”.

**Necessity:** The change to add a new subsection for noise test method is reasonably necessary to specify the noise test method. The noise test method is published under the ENERGY STAR program for lamps and luminaires (also known as "ENERGY STAR specifications for lamps and luminaires") and the program has been announced to be sunset effective December 31, 2024. The change is necessary to ensure details of the noise time test method are retained in Joint Appendix JA8.

#### **Section** JA10.5

**Specific Purpose:** The specific purpose is to update the list of reference documents for the test procedure for lamp stabilization of Joint Appendix JA10 and following are the changes.

- The change is to delete “IES LM-9 for circle line, and U-tube fluorescent systems” and “Code of Federal Regulations 10 CFR 430.23(q) for linear fluorescent systems” from Section JA10.5.
- The change is to revise the reference document for induction lamps” as “IES-LM-66 for induction lamps”.
- The change is to revise the reference document for high intensity discharge lamps as “IES-LM-51 for high intensity discharge lamps”.

These testing reference documents are related to the general service lamp types that are banned for the sales in California.

**Necessity:** The change to remove the testing reference documents related to the general service incandescent light sources and the general service fluorescent light sources is to reflect the federal law (DOE new final rules related to general service lamps as published in the Federal Register, 10 CFR Parts 429 and 430, and Federal Register volume number 87FR53618) that bans the manufacturing and sale of general service incandescent lamps after July 2023 and the California law (AB-2208) that bans the sales and distribution of fluorescent lamps as a new manufactured product after 2024 and 2025 - banning screw and bayonet base type compact fluorescent (CFL)

lamps after January of 2024 and banning pin-base type CFL) and linear fluorescent lamps after January of 2025.

The change to revise the reference documents for the test procedure of induction lamps and high intensity discharge lamps is reasonably necessary in order to keep the reference documents accurate and up to date.

**Section:** JA12.1

**Specific Purpose:** Remove language regarding battery storage compliance credit. This clarifies that JA12 is not only a compliance credit, but also a prescriptive requirement. Added reference to Section 170.2(h), which is the prescriptive BESS requirement for newly constructed high-rise multifamily buildings.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA12.2

**Specific Purpose:** Introduced definitions for cycling capacity, compliance cycling capacity, reserve level, Integrated BESS, Field Assembled BESS, cycling capacity and usable capacity to explain the new requirements for energy storage systems. These definitions are identical to the new definitions added to JA1 and are added in JA12.2 for easy reader access.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction.

**Section:** JA12.3.1

**Specific Purpose:** Added alternative inverter safety requirement for UL1741 SB. This aligns with updates to CPUC Electric Rule 21 for grid support inverters.

**Necessity:** These changes are necessary to ensure the safety standards does not conflict with Rule 21 and ensure the general clarity and internal consistency of the Energy Code.

**Section:** JA12.3.2.1 and JA12.3.2.2

**Specific Purpose:** Removed the prescriptive requirement for minimum 5 kWh usable capacity for the BESS. There is no prescriptive BESS requirements for single-family. Exception 5 to 150.1(c)14 already specifies the minimum usable capacity of 7.5 kWh to qualify for the exception. Similarly, Exception 2 to Section 140.10(b) and Exception 2 to Section 170.2(h) specified that no BESS is required if it is less than 10 kWh.

**Necessity:** These changes are necessary to clarify the BESS requirements in JA12.

**Section:** JA12.3.3(c) and (d)

**Specific Purpose:** These sections has been removed and subsequent section renumbered. The specific purpose of this change is to remove the existing power shut-off requirements.

**Necessity:** These changes are necessary to clarify the BESS requirements in JA12. Based on industry feedback. BESS typically do not have a separate backup mode, rather the backup behavior described in JA12.3.3(c) is already embedded within the control strategies in JA12.4. As a result, this language is no longer necessary.

**Section:** JA12.3.3(c) and (d) after renumbering

**Specific Purpose:** The specific purpose of this change is to add a new 72-hour reset requirement for BESS in single-family applications. This new requirement will reset the cycling capacity back to the compliance cycling capacity after 72-hour as a result of changes in reserve level. This reset requirement exclude reserve level changes due to severe weather or Public Safety Power Shutoff events.

**Necessity:** These changes are necessary to ensure the load shifting capability and Long-term System Cost benefits of the BESS will be preserved throughout the life of the BESS. At the same time, this change allows some user flexibility with the 72-hour reset.

**Section:** JA12.4.5

**Specific Purpose:** Price Optimization Control strategy is introduced for BESS installed for non-residential buildings to mimic the operation of the real non-residential energy storage systems.

**Necessity:** These changes are necessary to provide flexibility for BESS manufacturers with an additional option to comply with the JA12 control requirements.

**Section:** JA12.4.6

**Specific Purpose:** This section has been edited for clarity. Section numbers have been updated and added references to “applications” for the alternative control strategies.

**Necessity:** These changes are necessary to ensure and improve the general clarity and internal consistency of the Energy Code. The reference to “applications” clarifies that the Executive Director may approve the application to the alternative control option.

**Section:** JA12.5

**Specific Purpose:** System labeling has been introduced for BESS installation in single-family buildings to provide information for the installed BESS. Minimum information required on the label includes the JA12 compliance cycling capacity and total capacity.

**Necessity:** These changes are necessary to document the installed information of the BESS and is an essential part of the verification step specified in JA12.6. The label also provides useful information for the building owner on the specification of the installed BESS.

**Section:** JA12.6

**Specific Purpose:** The section has been removed because of potential redundancy with other California Public Utilities Commission and Publicly Owned Utility interconnection requirements. Also, the load serving entities already have the interconnection procedures in place. Subsequent sections renumbered.

**Necessity:** These changes are necessary to remove the potential redundant requirements for interconnection.

**Section:** JA12.6 after renumbering

**Specific Purpose:** Additional language has been added to clarify the additional verification of the new BESS label and compliance cycling capacity requirements for newly constructed single-family installations.

**Necessity:** These changes are necessary to provide clear guidance to the enforcement agency for verification of JA12 BESS for single-family buildings.

**Section:** JA12.7 after renumbering

**Specific Purpose:** The specific purpose of this change is to specify the minimum documentation requirements for BESS manufacturers for JA12 certification. The required documentation includes BESS specifications sheet, documentation on control strategies, and documentation on the 72-hour reset specified in JA12.3.3(d).

**Necessity:** These changes are necessary to provide clear guidance for manufacturers for JA12 certification.

**Section:** JA13.3.2

**Specific Purpose:** The specific purpose of this change is to update the Northwest Energy Efficiency Alliance (NEEA) Advanced Water Heater Specification version to 8.0, and remove exclusion language to Appendix A.

**Necessity:** This appendix is necessary to align with the most recent version of the Northwest Energy Efficiency Alliance (NEEA) Advanced Water Heater Specification.

**Section:** JA13.3.3(g)

**Specific Purpose:** The specific purpose of this change is to clarify that this requirement to provide data remotely is only for the capability, and not requiring the JA13 heat pump water heater to provide this information.

**Necessity:** This change is essential for providing clarity regarding the intent of the code regarding JA13 certification.

**Section:** JA15

**Specific Purpose:** The specific purpose of adding this appendix is to support updates to the Standard language relating to central heat pump water heater ready. This provides sizing requirements, for electric ready infrastructure installed with gas or propane water heating systems to meet the requirement for electric readiness specified in Title 24, Part 6, Section 160.9(e)

**Necessity:** This appendix is necessary to describe in specific detail the qualification requirements for central heat pump water heater ready specified in Section 160.9(e).

**Section:** JA16

**Specific Purpose:** The specific purpose of adding this appendix is to support updates to the Standard language relating to installation of pool and/or spa heating systems. The appendix provides eligibility criteria for the mandatory pool heater requirements in Section 110.4(c), which includes solar pool and/or spa heating system certification requirements, heat pump pool heater methodology, and documentation requirement for on-site renewable or recovered energy.

**Necessity:** This appendix is necessary to describe in specific detail the eligibility requirements for heat source sizing for pool heaters specified in Section 110.4(c). These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402. These additions reduce Long-term System Cost and Source Energy use via the use of cost-effective solar thermal swimming pool applications, properly sized heat pump pool heater, or alternative energy efficient pool heating technologies.

**Section:** JA17

**Specific Purpose:** The specific purpose of this change is to add a new joint appendix JA17 to the reference appendices that includes qualification requirements for HRV/ERV system fault indicator system displays.

**Necessity:** This addition is necessary to provide manufacturers or controls suppliers a method to verify and comply with the Title 24, Part 6, Section 150.1c.15 HRV/ERV ventilation system fault indication display requirements including the fault indication categories, instrumentation and reporting, and manufacturer certifications

**Section:** JA18 Guideline 36 Programming Library Certification Submittal Requirements

**Specific Purpose:** The specific purpose of this additional appendix is to define the certification requirements for the programming libraries to be used for HVAC control systems as stated in Section 140.4(r). Each Building Automation System (BAS) manufacturer or controls supplier wishing to certify their G36 libraries should conform to the G36 library requirements of Title 24, Part 6. The manufacturers or controls suppliers can refer to JA18 for the programming library certification requirements, certification process, and declaration form.

**Necessity:** These changes are necessary to provide BAS manufacturers or controls suppliers a method to comply with the Title 24, Section 140.4(r) certification requirement. They provide compliant pathway for stakeholders in meeting Title 24 Requirements.

**Section:** RA

**Specific Purpose:** Replace EER and SEER with EER2 and SEER2.

**Necessity:** In residential buildings, space conditioning efficiency metrics were updated to EER2/SEER2/HSPF2. The residential appendix was updated to reflect that these new metrics are now used in place of the original EER and SEER metric.

**Section:** Table RA2-1

**Specific Purpose:** The specific purpose of this change is to reflect changes in the RA3.6 sections, to remove performance credit options for multifamily buildings for whole house fans, central fan ventilation cooling systems, and precooling, and general clean up changes.

**Necessity:** These changes are necessary to improve the general clarity and internal consistency of the Energy Code. The performance options listed were removed from multifamily buildings because they were infrequently installed in these buildings, and removing them simplifies our code language requirements, and simplifies compliance as it relates to these buildings.

**Section:** RA2.1

**Specific Purpose:** The purpose of this change is to address existing issues with identifying ECC-Raters as special inspectors for residential construction by removing that designation.

**Necessity:** This change is necessary to clarify the ECC-Rater's role and to limit the restrictions that local jurisdictions can place of legitimate ECC-Rater activities. The designation as a special inspector requires more training than an ECC-Rater would receive as well as approval by a local jurisdiction to provide inspection services in its jurisdiction. This benefits the CEC in accomplishing its responsibility under Statute 25402.

**Section:** RA3 - Change from Low-Rise Residential to Single-Family and Multifamily.

**Specific Purpose:** The purpose of this change is to replace language that limited this section to only low-rise residential buildings with language that more accurately described the applicability of these requirements to single-family and multifamily buildings. These changes appear and apply throughout RA3 therefore this is intended to identify the purpose and necessity as a consolidated grouping.

**Necessity:** This change is needed to ensure that this language accurately accounts for scenarios where these requirements may apply to multifamily buildings above 3 habitable stories. Where these measures are applicable to multifamily buildings regardless of building height, this change ensures consistency exists.

**Section:** RA3.2.3.1 Weigh-In Charging Procedure

**Purpose:** This section is changed to apply to heat pumps. This would extend verification requirements to heat pumps in all climate zones except 6 and 7.

**Necessity:** These changes are required to ensure the weigh-in charging procedure can be applied to heat pumps, increasing energy savings.

**Section:** RA3.2.3.1.5 Weigh-In Procedure

**Purpose:** The purpose of the changes in this section are to add to and improve upon the clarity of the weigh-in procedure. These changes retain existing methods but adds rigor to the weigh-in method.

**Necessity:** These changes are required to describe the enhanced requirements for documentation and adds increased rigor to the weigh-in method to make charge verification more accurate, increasing energy savings

**Section:** RA3.2.3.1.5 Weigh-In Procedure

**Purpose:** The purpose of the deletions in this section are to improve upon the clarity of weigh-in procedure. Indoor coil inclusion and line set length and diameter vary by manufacturer. The added language improves upon the removed language's clarity by referencing the need to utilize manufacturer instructions.

**Necessity:** These changes are required to describe the enhanced requirements for documentation and add clarity to the weigh-in method to make charge verification more accurate, increasing energy savings

**Section:** RA3.2.3.2 ECC-Rater – Observation of Weigh-In Charging Procedure

**Purpose:** The purpose of the changes in this section is to update the ECC-Rater verification procedure related to weigh-in charge verification so that it conforms with the new charge verification requirements.

**Necessity:** These changes are required to describe the enhanced requirements for documentation and adds increased rigor to the weigh-in method to make charge verification more accurate, increasing energy savings.

**Section:** RA3.2.3.2 ECC-Rater – Observation of Weigh-In Charging Procedure

**Purpose:** The purpose of the deletions in this section is to reflect the changes that have been made to the weigh-in method in RA3.2.3.1.5.

**Necessity:** These changes are required to add clarity to the weigh-in method to make charge verification more accurate, increasing energy savings.

**Section:** RA 3.3.3

**Purpose:** brokeout the term low-rise to single-family and multifamily

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous for the specific building type.

**Section:** RA 3.5.1

**Purpose:** Added subsection 170.2(a)6 to RA 3.5.1. Per Section 170.2(a)6 Multifamily building with 3 stories of less do need to meet QII requirements in RA 3.5.

**Necessity:** These changes are necessary to ensure that provisions in subsequent sections are clear and unambiguous, and that non-technical readers are able to find and understand the technical meaning of specific terms and technical standards relating to building design and construction

**Section:** RA3.6.2

**Specific Purpose:** The specific purpose of this change is to reflect pipe insulation changes in Section 150.0(j) and consolidate pipe insulation verification procedure preciously in both RA3.6.2 and RA3.6.3. RA section renamed to apply to single dwelling system only.

**Necessity:** These changes are necessary to provide procedures for ECC raters to check pipe insulation quality. These changes are necessary to improve the general clarity and internal consistency of the Energy Code.

**Section:** RA3.6.3

**Specific Purpose:** The specific purpose of this change is to create a new verification procedure to reflect pipe insulation changes specified in Section 160.4 for central water heating systems. The new procedure requires visual inspection of the heating plant, horizontal supply heater, and return piping to verify that the mandatory pipe insulation requirements in Section 160.4 are met. Previous procedure for single dwelling has been consolidated to RA3.6.2.

**Necessity:** These changes are necessary to provide procedures for ECC raters to check pipe insulation quality. These changes are necessary to improve the general clarity and internal consistency of the Energy Code.

**Section:** RA3.6.8

**Specific Purpose:** The specific purpose of this change is to remove the verification procedure for multiple recirculation loop and renamed section to “Reserved”. This change aligns with removal of the same compliance credit reference in RA4.4.19.

**Necessity:** These changes are necessary to improve the general clarity and internal consistency of the Energy Code. Multiple loop credit has been removed as a compliance credit because of uncertainty about the actual performance. This change aligns with changes in RA4.4.19 and the compliance software.

**Section:** RA3.8.3(c)

**Specific Purpose:** The specific purpose of this change is to add a multi-point airtightness test as specified in RESNET 380 section 4.4.2.

**Necessity:** Single-point test is done at 50 Pa or close whereas a multipoint test is done at several different pressures which helps increase test accuracy results in blower door tests. The addition of a multi-point airtightness test is necessary to increase energy efficiency, ensure ventilation control for public health and safety, and is consistent with the California Public Resources Code Sections §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** RA3.8.4(a)

**Specific Purpose:** The specific purpose of this change is to add the word ‘if’ determined by a one-point airtightness test as specified in RESNET 380 section 4.5.1. equation 5(a).

**Necessity:** These changes are necessary as there is an addition of an option for a multi-point airtightness test in RA3.8.3 and thus adding the word ‘if’ would improve 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:** RA3.9.1

**Specific Purpose:** This addition is necessary to clearly state that RA3.9.1 is intended to measure WHF systems.

**Necessity:** This change is necessary to improve 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:** RA4.4.1

**Specific Purpose:** The specific purpose of this change is to update the reference to the California Plumbing Code from Section 609.11 to Section 609.12. This section was renumbered in the 2022 California Plumbing Code. In addition, the phrase “Unless otherwise stated” is removed and “must” changed to “shall” for clarity. All insulation shall meet the mandatory requirements in Section 150.0(j).

**Necessity:** These terms ensure and improve the general clarity and internal consistency of the Energy Code.

**Section:** RA4.4.3

**Specific Purpose:** The specific purpose of this change is to create new qualification criteria to receive compliance credit for thermostatic balancing valve. The criteria include calculation that the return pipe portion of the recirculation loop does not exceed 160 feet, the installation of a variable speed pump, and start-up procedure for the installer.

**Necessity:** These changes are necessary to implement this compliance credit by providing procedures for installers and inspectors. The procedures ensure the thermostatic balancing valves performs properly and that the energy savings claimed by the compliance credit would be realized. These changes are necessary to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402, and to improve the general clarity and internal consistency of the Energy Code.

**Section:** RA4.4.14

**Specific Purpose:** The specific purpose of this change is to update reference to single dwelling and RA3.6.2 to reflect changes in the RA3.6 sections. RA3.6.2 has been updated to reflect pipe insulation changes in Section 150.0(j) and consolidate pipe insulation verification procedure previously in both RA3.6.2 and RA3.6.3

**Necessity:** These changes are necessary to improve the general clarity and internal consistency of the Energy Code. This change reference the correct RA3.6 section.

**Section:** RA4.4.19

**Specific Purpose:** The specific purpose of this change is to create new qualification criteria for master mixing valves. Previous reference to HERS-Verified multiple recirculation loop has been removed to align with changes in RA3.6.8. The building designers and contractors are required to provide minimum MMV specification, installation, and commissioning requirements.

**Necessity:** These changes are necessary to provide procedures for installers and inspectors and to support the new master mixing valve requirement specified in Section 170.2(d)2D. These changes ensure the master mixing valves are properly installed and to increase energy efficiency via cost-effective building design standards, as directed by California Public Resources Code Sections 25213 and 25402, and to improve the general clarity and internal consistency of the Energy Code.

**Section:** Table NA1-1

**Purpose:** The purpose of this change is to delete field verification and diagnostic testing and replace it with acceptance testing for the nonresidential and multifamily common area duct leakage test. NA2 is reserved ECC field verification and diagnostic tests and NA7 is reserved for acceptance tests. This language was moved from NA2.1 to NA7.5.3.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires nonresidential and multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by an ECC-rater. The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the ECC program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in nonresidential buildings and multifamily common areas is under the scope of the ATTCP program. Removing the ECC field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** NA1.2.2

**Purpose:** The purpose of this change is to conform with the new requirements restricting duct acceptance testing to certified Acceptance Test Technicians.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires nonresidential and multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by an ECC-rater. The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the ECC program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in nonresidential buildings and multifamily common areas is under the scope of the ATTCP program. Removing the ECC field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** NA1.6.3

**Purpose:** This purpose of this addition was to clarify existing procedures regarding the use of Certificates of Acceptance and ECC-Raters performing field verification and diagnostic testing.

**Necessity:** This addition is necessary to reinforce the current practices of ATTs and ECC-Raters as they interact in the field. Currently, ECC-Raters are not required to register Certificates of Acceptance completed by ATTs, but this requirement is not explicit. This addition will help to streamline compliance in accordance with California Public Resources Code Sections §25402.

**Section:** NA1.9.1

**Purpose:** The purpose of this change is to remove the condition that the enforcement agency must approve the alternative procedure for field verification by the ATT as specified in NA1.9.

**Necessity:** The intent of NA1.9 is to allow an ATT to perform field verification if an ATT is already on the project performing acceptance tests or if the installer is a certified ATT. NA1.9 is only applicable to nonresidential buildings, common areas of multifamily buildings, and high-rise multifamily buildings. To have the enforcement agency approve this process may be overly onerous because NA1.9 is not commonly used so the enforcement agency is likely not familiar with this procedural alternative regulation. The requirements in NA1.9.2 for compliance documentation will be sufficient to ensure the tests were performed.

**Section:** NA2.1

**Purpose:** The purpose of this change is to delete HERS field verification and diagnostic testing and replace it with acceptance testing for the nonresidential and multifamily common area duct leakage test. NA2 is henceforth reserved for field verification and diagnostic tests and NA7 is reserved for acceptance tests. This language was moved entirely from NA2.1 to NA7.5.3.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires nonresidential and multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by an ECC rater. The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the ECC program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in nonresidential buildings and multifamily common areas is under the scope of the ATTCP program. Removing the field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** Table NA2.2-1

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to better clarify or correct minor issues with the Energy Code. This is done to be consistent with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16. Section NA2.2.4.2 was reorganized and renumbered to NA2.2.4.1.3, unfortunately Table NA2.2-1 was not updated to reflect this minor change in the 2022 Energy Code.

**Section:** NA2.2.4.1.5

**Specific Purpose:** The specific purpose of this change is to update Home Ventilating Institute (HVI) Certified Home Ventilating products directory link for the Heat Recovery Ventilation (HRV) or Energy Recovery Ventilation (ERV) rated performance verification. Also, Home Ventilating Institute (HVI) Certified Home Ventilating Products Directory website link to the program has been updated.

**Necessity:** These changes are necessary as the HRV/ERV rated performance verification relies upon the HVI certified home ventilating products directory or another directory of certified product performance ratings approved by the CEC for compliance.

**Section:** NA2.3.3(3)

**Specific Purpose:** The specific purpose of this change is to add a multi-point airtightness test as specified in RESNET 380 section 4.4.2.

**Necessity:** Single-point test is done at 50 Pa or close whereas a multipoint test is done at several different pressures which helps increase test accuracy results in blower door tests. The addition of a multi-point airtightness test is necessary to increase energy efficiency, ensure ventilation control for public health and safety, and is consistent with the California Public Resources Code Sections §25402 and §25402.8 on assessment of indoor air pollution in new buildings.

**Section:** NA2.3.4(1)

**Specific Purpose:** The specific purpose of this change is to add the word “if” determined by a one-point airtightness test as specified in RESNET 380 Section 4.5.1 equation 5(a).

**Necessity:** These changes are necessary as there is an addition of an option for multi-point airtightness test in NA2.3.3(3) and thus, adding the word “if” would 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:** NA4.4

**Specific Purpose:** The specific purpose of the change is to correct minor typographical errors or to update references throughout NA4.4

**Necessity:** The changes are necessary to ensure the code can be read without any confusions. The changes are reasonably necessary to ensure and improve the general clarity and internal consistency of the Energy Code.

**Section;** Table NA4-1

**Purpose:** The specific purpose of this change is to reflect the change in terminology from Time Dependent Valuation to Long-term System Cost in all locations in the Energy Code and associated documents. Long-term System Cost is similar to Time Dependent Valuation in that it varies for every hour of the year to capture the value of energy and emissions at different times of the day and at different times of the year. Long-term System Cost is a cost metric that represents long-term marginal costs to the energy system over 30-years through which we hope to better account for, and relay to the public, the long-term dollar cost impact to California’s energy system.

**Necessity:** This change is needed to ensure consistency with the updates to the 2025 Energy Standards and Reference Appendices.

**Section:** NA4.5(a) and NAA4.5(a)1(a) Optional Features

**Specific Purpose:** Add EER2 and SEER2 to HVAC equipment examples.

**Necessity:** Nonresidential projects still have the option of using residential or commercial equipment to provide space conditioning. Residential space conditioning efficiency metrics have been updated to EER2/SEER2/HSPF2 and are reflected in these examples. This change will ensure internal consistency and will help reduce the unnecessary consumption of energy via cost-effective building standards.

**Section:** NA5.9.3

**Purpose:** The specific purpose of this change is to correct usage of the word “assembly” to improve readability; in this instance it should be singular and not plural.

**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:** NA6.5.3.1

**Purpose:** The specific purpose of this change is to remove the word “also” to improve readability.

**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:** NA7.1

**Specific Purpose:** The specific purpose of this change is to clarify that the procedures of NA7.1 can apply to all multifamily buildings, and not just high-rise residential buildings.

**Necessity:** This change is reasonably necessary to ensure that all multifamily buildings comply with the applicable requirements of NA7.1, 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:** NA7.2

**Specific Purpose:** The purpose of this change is to delete field verification and diagnostic testing and replace it with acceptance testing for the nonresidential and multifamily duct leakage test.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires nonresidential and multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by an ECC-rater. The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the ECC program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in nonresidential buildings and multifamily common areas is under the scope of the ATTCP program. Removing the ECC field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** NA7.4.6.3(g)

**Specific Purpose:**

The purpose of this deletion is to remove a verification that is applicable to a different type of installation.

**Necessity:**

This deletion is necessary to remove what appears to be a reference to operable shading control having nothing to do with light shelves and will improve clarity and readability of the regulations in furtherance of California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16. This change does not impact the compliance obligations of regulated entities.

**Section:** NA7.5.1.1.1(f)

**Specific Purpose:** The specific purpose of this change is to allow a newly installed HVAC system to pre-purge 1 hour prior to occupation using the methods as provided in Section 120.1(d)2.

**Necessity:** This change is necessary to refrain from inadvertently restricting the 1-hour pre-purge requirement for occupied spaces at the rate prescribed by Section 120.1(c). Section 120.1(d)2 allows pre-purge to be lesser of the minimum rate of outdoor air required by Section 120.1(c) or three complete air changes supplied to the entire building during the one-hour period immediately before the building is normally occupied. The alternative “three complete air changes” was inadvertently restricted by the directions in NA7.5.1.1.1(f). This change is consistent with California Public Resources Code Sections 25213 and 25402.

**Section:** NA7.5.1.2.1(c)

**Specific Purpose:** The specific purpose of this change is to allow a newly installed HVAC system to pre-purge 1 hour prior to occupation using the methods as provided in Section 120.1(d)2.

**Necessity:** This change is necessary to refrain from inadvertently restricting the 1-hour pre-purge requirement for occupied spaces at the rate prescribed by Section 120.1(c). Section 120.1(d)2 allows pre-purge to be lesser of the minimum rate of outdoor air required by Section 120.1(c) or three complete air changes supplied to the entire building during the one-hour period immediately before the building is normally occupied. The alternative “three complete air changes” was inadvertently restricted by the directions in NA7.5.1.2.1(c). This change is consistent with California Public Resources Code Sections 25213 and 25402.

**Section:** NA7.5.2.1(a)

**Specific Purpose:** The purpose of this change modifies language related to an unintended curtailment of compliance paths regarding thermostat locations and adds the appropriate Energy Code reference.

**Necessity:** This change is necessary to address an unintended curtailment of compliance paths regarding thermostat locations and improve readability and clarity of the regulations by allowing builders to implement compliance pathways already provided in the Energy Code. This is necessary to comply with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** NA7.5.3

**Purpose:** The purpose of this change is to delete HERS field verification and diagnostic testing and replace it with acceptance testing for the nonresidential and multifamily common area duct leakage test. NA2 is here forth reserved field verification and diagnostic tests and NA7 is reserved for acceptance tests. This language was moved from NA2.1 to NA7.5.3.

**Necessity:** The mechanical ATTCP program became effective as of October 2021. The 2022 Energy Code language requires nonresidential and multifamily common area duct leakage test to first be performed by a certified mechanical ATT and then field verified by a rater. The change is necessary because this is duplicative and redundant as written in the 2022 Energy Code where the duct leakage test procedure is the same for both tests. The ATTCP program and the ECC program are both intended to ensure equipment are installed in compliance with the Energy Code. Functional testing in nonresidential buildings and multifamily common areas is under the scope of the ATTCP program. Removing the HERS field verification and diagnostic requirement will also reduce confusion moving forward on who needs to perform the duct leakage test.

**Section:** NA7.5.4.1(a)

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to improve readability and clarity of the regulations by allowing builders to implement compliance pathways already provided in the Energy Code. This is necessary to comply with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** NA7.5.4.2

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to improve readability and clarity of the regulations by allowing builders to implement compliance pathways already provided in the Energy Code. This is necessary to comply with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** NA7.5.5.1

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to improve readability and clarity of the regulations by allowing builders to implement compliance pathways already provided in the Energy Code. This is necessary to comply with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** NA7.5.9.2(h)

**Purpose:** The specific purpose of this change is to remove the word “either” to improve readability and clarify that there is only one option.

**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:** NA7.5.10.2

**Specific Purpose:** The changes to this section add step 3 for clarity of a action that already takes place in the field. The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to better clarify or correct minor issues with the Energy Code. The addition of the final step (step 3) to return the system to normal operating condition is necessary to ensure consistency with most acceptance tests. This benefits the CEC by complying with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16.

**Section:** NA7.5.14.2

**Specific Purpose:** The changes in this section add and modify language for clarity of an established acceptance test. The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to better clarify or correct minor issues with the Energy Code. This benefits the CEC by complying with California Government Code 11349 and 11349.1 and California Code of Regulations title 1, Section 16. The acceptance test NA7.5.14.2 included references to a “second part” and a “step 2” neither of which is expressly specified in the acceptance testing procedures. These changes correct this minor oversight.

**Section:** NA7.5.17.2, Step 2

**Purpose:** The specific purpose of this change is to correct a minor grammatical error to improve readability; it should read as “detects” and not “detect”.

**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:** NA7.5.18, NA 7.5.18.1, NA 7.5.18.2

**Specific Purpose:** These changes add requirements for construction inspection of blowdown controls and functional testing of overflow alarm, as applied to all open- and closed-circuit cooling towers.

**Necessity:** Water savings associated with blowdown controls are dependent on the functionality of the controls. Inspection and testing of controls and overflow alarm will ensure that controls are operating properly and reductions in water usage are realized. These testing requirements for blowdown controls will reduce excessive water use and avoid the unnecessary consumption of energy, consistent with California Public Resources Code Sections 25213 and 25402. These parameters are based on the typical industry practice and ensure that the operation of the cooling tower is not degraded based on water quality.

**Section:** Table NA-7

**Specific Purpose:** These changes add a table to specify blowdown parameters for cooling towers.

**Necessity:** Water savings for cooling towers are achieved through reduced water loss from blowdowns. Parameters identified in Table-NA-7 are used to determine when cooling tower blowdown is required. These parameters are the same parameters included in Section 110.2(e) of the Building Efficiency Standards.

**Section:** NA7.6.1.1

**Specific Purpose:** The specific purpose of the change to this section is to make non-substantive formatting changes and subdivision heading changes necessary to effectively communicate the requirements and standards in a precise and clear manner.

**Necessity:** This change was necessary to ensure clarity and internal consistency within 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(e)

**Purpose:** The specific purpose of this change is to remove the word “aforementioned” to improve readability.

**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:** NA7.6.2.5(d)

**Purpose:** The specific purpose of this change is to correct a minor grammatical error to improve readability; it should read as "are" instead of "is".

**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:** NA7.6.2.6(b)

**Purpose:** The specific purpose of this change is to delete "exempt" and to add "that are not required to comply" about areas that are not required to comply for the automatic time switch lighting controls functional testing. There are no substantive changes to the functional testing requirements and the change will improve readability of the code language.

**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:** NA7.6.3.1

**Specific Purpose:** The specific purpose of the change to this section is to make non-substantive grammatical changes necessary to effectively communicate the requirements and standards in a precise and clear manner.

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

There are also non-substantive grammatical changes and subdivision heading changes necessary to effectively communicate the requirements and standards in a precise and clear manner.

**Section:** NA7.6.5.1

**Specific Purpose:** The specific purpose of the change to this section is to update the demand responsive controlled receptacle construction inspection requirements to be consistent with the construction inspection requirements for demand responsive lighting controls found in NA7.6.3.1.

There are also non-substantive grammatical changes and subdivision heading changes necessary to effectively communicate the requirements and standards in a precise and clear manner.

**Necessity:** These changes are necessary to provide specific procedures that technicians must follow during the construction inspection and to ensure clarity and internal consistency within the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** NA7.6.5.2

**Specific Purpose:** The specific purpose of the change to this section is to make non-substantive grammatical changes, formatting changes, and subdivision heading changes necessary to effectively communicate the requirements and standards in a precise and clear manner.

These changes include relocating language from subsections NA7.6.5.2.1, NA7.6.5.2.2, and NA7.6.5.2.3 and moving it to NA7.6.5.2

The other change to this section is to replace the term 'lighting controls' with 'controlled receptacles.' This change is necessary to ensure that sampling procedures are based on the number of enclosed spaces required to have demand responsive controlled receptacles, which will result in greater compliance and, therefore, avoid the unnecessary consumption of energy.

**Necessity:** The change to relocate the subsections to within the section help aid the reader understand the requirements and improve readability.

The change to replace the term "lighting controls" with "controlled receptacles" is to update the test requirements with the requirements of Section 110.12 about controlled receptacles.

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

**Section:** NA7.6.5.2.1, NA7.6.5.2.2, NA7.6.5.2.3 (removed)

**Specific Purpose:** The specific purpose of the change to this section is to make non-substantive formatting changes and subdivision heading changes necessary to effectively communicate the requirements and standards in a precise and clear manner. Language from these subsections was relocated to NA7.6.5.2. These subsections were removed.

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

**Section:** NA7.10.3.2.2 Step 7

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** This change is necessary to ensure all relevant original settings are reset. This change is necessary to ensure clarity and internal consistency within the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** NA7.10.3.3.1d

**Specific Purpose:** The purpose of this change is to add an apostrophe to make "manufacturer" possessive to ensure grammatical accuracy and clarity.

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

**Section:** NA7.11.1.1

**Specific Purpose:** The purpose of this change is to update the reference to the current Table number, Table 140.9-C.

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

**Section:** NA7.15.2h

**Specific Purpose:**

The purpose of this change is to correct minor errors in referencing, spelling and grammar.

**Necessity:** The instruction in step h was inadvertently mixed up with the instructions in the previous step. The corrections are consistent with current practice in the field and will result in more clear code language. This change is necessary to ensure clarity and internal consistency within the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** NA 7.16.1 Construction Inspection for VAV Lab Exhaust System with Occupancy Control

**Specific Purpose:** These changes itemize requirements for construction inspection of VAV lab exhaust system. Provide specifics for what minimum requirements should be based on what equipment is used in the lab exhaust system.

**Necessity:** This section is necessary to list what measurements should be made on the VAV lab exhaust system, and how to use these measured results, to verify whether or not the equipment meets requirements identified in Section 140.9(c). This inspection is needed to ensure that equipment meets requirements and energy savings are realized. Verifying installation of requirements will ensure energy savings of measures as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** NA7.16.2 Functional Testing for VAV Lab Exhaust System with Occupancy Control

**Specific Purpose:** These changes include adding steps for functional testing of occupancy controls.

**Necessity:** Energy savings for occupied and unoccupied flowrates for laboratory exhaust systems are dependent on the functionality of the controls. Inspection and testing of controls, and fan power under different occupancy conditions will ensure that controls are operating properly and reductions in energy usage are realized. Simulating occupancy conditions and verifying the effects on space conditioning equipment is similar to other functional testing requirements for mechanical systems. These testing for controls will reduce excessive energy use as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** NA 7.16.3 Construction Inspection for Simple Turndown Control and NA 7.16.4 Functional Testing for Simple Turndown Control

**Specific Purpose:** These changes itemize requirements for construction inspection and functional testing of simple turndown controls. They also provide specifics for comparing minimum requirements for fan power and airflow rates at various conditions.

**Necessity:** This section is necessary to list what measurements should be made on the lab exhaust fan system when a simple turndown control is used, and how to use these measured results to verify whether or not the equipment meets requirements identified in Section 140.9(c). Conditions at minimum occupancy, and 60% design airflow are compared to performance and design conditions. This inspection is needed to ensure that equipment meets requirements and energy savings are realized. Verifying installation of requirements will ensure energy savings of measures as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** NA 7.16.5 Construction Inspection for Wind/Speed Direction Responsive Control and NA 7.16.6 Functional Testing for Wind Speed/Direction Responsive Control

**Specific Purpose:** These changes update requirements for construction inspection and functional testing of wind/speed direction responsive controls. Provide specifics for comparing minimum requirements for fan power and airflow rates at various conditions.

**Necessity:** This section is necessary to list what measurements should be made on the lab exhaust fan system when a simple turndown control is used, and how to use these measured results to verify whether or not the equipment meets requirements identified in Section 140.9(c). Conditions at minimum occupancy and 60% of design airflow are compared to performance at design conditions. Existing test requirements were removed or revised as these requirements did not specify how the minimum airflow rates are compared to the maximum airflow rates. This inspection is needed to ensure that equipment meets requirements and energy savings are realized. Verifying installation of requirements will ensure energy savings of measures as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** NA 7.16.7 Construction Inspection for Monitored Contaminant Control and NA 7.16.8 Functional Testing for Monitored Contaminant Control

**Specific Purpose:** Update requirements for construction inspection and functional testing of monitored contaminant controls. Provide specifics for comparing minimum requirements for fan power and airflow rates at maximum and minimum conditions.

**Necessity:** This section is necessary to list what measurements should be made on the lab exhaust fan system when a monitored contaminant control is used, and how to use these measured results to verify whether or not the equipment meets requirements identified in Section 140.9(c). Conditions at minimum occupancy and 60% of design airflow are compared to performance at design conditions. Existing test requirements were removed or revised as these requirements did not specify how the minimum airflow rates are compared to the maximum airflow rates. This inspection is needed to ensure that equipment meets requirements and energy savings are realized. Verifying installation of requirements will ensure energy savings of measures as directed by California Public Resources Code Sections 25213 and 25402.

**Section:** NA7.18.3

**Specific Purpose:** The purpose of this change is to update the reference to the most up-to-date test procedure for total duct leakage.

**Necessity:** This change is necessary to ensure the Energy Code is up to date with the most recent industry-accepted test procedure. This change is necessary to ensure clarity within the Energy Code, as directed by California Government Code, Sections 11349 and 11349.1, and California Code of Regulations, Title 1, Section 16.

**Section:** NA7.18.4

**Specific Purpose:** The purpose of this change is to correct minor errors in referencing, spelling and grammar.

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

**Section:** NA7.20.1

**Specific Purpose:** The purpose of this change is to address an error from the last code cycle by removing the reference to the operation of typical transcritical refrigeration systems in relation to other mechanical refrigeration systems.

**Necessity:** This change is necessary to avoid misleading local enforcement agencies when approving or inspecting installations of transcritical refrigeration systems. This will result in a clearer and easier to enforce Energy Code, helping to avoid the unnecessary consumption of energy consistent with California Public Resources Code Section 25402.

**Section:** NA7.20.1.1.1(f)

**Specific Purpose:** The specific purpose of this change is to address an error from the last code cycle by removing the language that allowed for the ambient dry bulb temperature sensor to be installed between two other specified components.

**Necessity:** This change is necessary to prevent transcritical refrigeration systems from sub-optimal operation due to an inaccurate sensor placement. This will result in a clearer and easier to enforce Energy Code, helping to avoid the unnecessary consumption of energy consistent with California Public Resources Code Section 25402.

**Section:** NA7.20.1.1.3 Step 2(a)

**Specific Purpose:** The purpose of this change is to remove instructions for technicians related to fan speed allowances that may have unintended consequences.

**Necessity:** This change is necessary to remove a recommendation to technicians that may, if followed, result in suboptimum performance of gas cooler fans in a refrigeration system, and the inefficient or wasteful use of energy. This will result in a clearer and easier to enforce Energy Code, helping to avoid the unnecessary consumption of energy consistent with California Public Resources Code Section 25402.

## **TECHNICAL, THEORETICAL, AND EMPIRICAL STUDIES, REPORTS, OR SIMILAR DOCUMENTS RELIED UPON**

The CEC relied on input from various stakeholders, subject matter experts, and interested parties that provided information, feedback, and subject matter expertise.

In addition, the CEC relied upon the following documents:

- 2025 CASE Report - 2022 Refrigeration Addendum
- 2025 CASE Report - Buried Ducts and Roofs with Cathedral Ceilings
- 2025 CASE Report - Commercial Kitchens
- 2025 CASE Report - Controlled Environment Horticulture
- 2025 CASE Report - Cooling Towers
- 2025 CASE Report - Daylighting
- 2025 CASE Report - Multifamily Domestic Hot Water
- 2025 CASE Report - Multifamily Envelope
- 2025 CASE Report - Multifamily Indoor Air Quality
- 2025 CASE Report - Multifamily Restructuring
- 2025 CASE Report - Nonresidential Envelope
- 2025 CASE Report - Nonresidential HVAC Controls - Guideline 36
- 2025 CASE Report - Nonresidential HVAC Space Heating
- 2025 CASE Report - Nonresidential Laboratories
- 2025 CASE Report - Process Load Pipe Insulation
- 2025 CASE Report - Residential HVAC Performance
- 2025 CASE Report - Single-Family High-Performance Windows and Walls
- 2025 CASE Report - Swimming Pool and Spa Heating
- 2025 Single Family Dual Heat Pump Baseline
- 2025 Nonresidential HVAC Heat Pump Baseline
- 2025 Energy Code Accounting Methodology
- 2025 Energy Code Measure Proposal - Photovoltaic and Battery Update and Expansion
- 2025 Multifamily Individual Heat Pump Water Heater Baseline
- Final Staff Report: 2025 Update of Field Verification and Diagnostic Testing Requirements. November 2023. CEC number 400-2023-011.

The listed documents have been filed in this proceeding's docket number 24-BSTD-01. In addition, upon request, all documents are available at the California CEC, located at 715 P Street, in Sacramento, California.

## **STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS**

The proposed changes to the prescriptive standards have, where possible, avoided mandating use of specific technologies or equipment, or prescribing the performance of

specific actions or procedures. The prescriptive standards are generally performance-based efficiency metrics. However, the Energy Code includes both a prescriptive option, allowing builders to comply by using methods known to be efficient, and a performance option, allowing builders more freedom in their designs, provided the building achieves the same overall efficiency as an equivalent building using the prescriptive option.

### **CONSIDERATION OF REASONABLE ALTERNATIVES, INCLUDING THOSE THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

Since 1975, legislative enactments and state energy policies have directed the CEC to adopt cost-effective building standards to conserve energy and improve energy efficiency and thereby improve the state's economy, energy security, and environment. The CEC has been presented with and has considered multiple alternatives to the proposed standards; however, at this time no reasonable alternatives to the proposed regulations have been proposed that would lessen any adverse impact on small businesses or that would be less burdensome and equally effective in achieving the purposes of the regulation in a manner that achieves the purposes of the statute being implemented.

During the initial, informal stage of the rulemaking process, the CEC conducted an extensive pre-rulemaking public process – including eleven (11) public workshops – where it considered many suggestions from numerous stakeholders about (1) alternatives that could improve the feasibility of the CEC's preliminary versions of the proposed regulations or could reduce their adverse impacts; (2) the technical and cost-effectiveness analyses of those preliminary proposals; and (3) the language in those proposals. Based on the comments received and the aforementioned robust public process, the CEC developed and published preliminary rulemaking code language.

### **FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS**

The CEC has made an initial determination that the proposed regulations are unlikely to have a statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. Despite minor competitive impacts to California businesses in the short term, the long-term benefits of the proposed regulations will not disadvantage California businesses from competing with businesses in other states.

On the contrary, California's Energy Code is part of the California Building Standards Code and therefore impact nearly all newly constructed buildings, as well as to specific additions and alterations to nearly all existing buildings. Therefore, the Energy Code may eventually impact all business in the state that own buildings. While there are initial up-front costs imposed by the Energy Code, there are significantly more lifetime savings to residents and businesses across the state who will experience lower energy costs and lower overall costs of ownership.

There are long-term savings that typically more than compensate for initial upfront costs by a significantly positive ratio. Past changes to the Energy Code continue to generate benefits. More simply, the Energy Code helps create long-term economic growth and stability by increasing the disposable income of Californians and California businesses in the longer term. These long-term benefits far outweigh the initial upfront costs and, therefore, California businesses are not disadvantaged in competing with businesses from other states by these regulations. Since the 1970s, California has maintained a deep history of progressive environmental and energy regulations that also save consumers money. Additional facts, data, and evidence supporting this initial determination are included in the CEC's Economic and Fiscal Analysis (STD. 399) and in the rulemaking docket.

### **ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION**

The CEC has assessed whether and to what extent this proposal will affect the following:

#### **A. The creation or elimination of jobs within the State of California.**

The CEC has made the initial determination that the proposed regulations for the 2025 Energy Code will result in an estimated 6,215 jobs created and 18 jobs eliminated. Jobs created and eliminated estimates were developed with support from Evergreen Economics using IMPLAN modeling software. The IMPLAN model provides a relatively simple representation of the California economy' however, it is important to understand that the IMPLAN model simplifies the extremely complex actions and interactions of individual, businesses, and other organizations as they respond to changes in energy efficiency codes. The estimated jobs eliminated are the result of a proposed measure that will increase central water heating pipe efficiency requirements in newly constructed multifamily buildings, which will result in increased costs for builders. This measure results in incremental costs and thereby decreases discretionary income. Therefore, the CEC concludes that the proposal may result in both jobs created and eliminated in California.

#### **B. The creation of new businesses or the elimination of existing businesses within the State of California.**

California's Energy Code is part of the California Building Standards Code and therefore impacts nearly all newly constructed buildings, as well as specific additions and alterations to existing buildings. As a result, the 2025 Energy Code is expected to eventually impact all businesses in the state that own buildings. While there are initial up-front costs imposed by the Energy Code, there are significantly more lifetime savings to residents and businesses across the state who will experience lower energy costs and lower overall costs of ownership. The Energy Code helps create long-term economic growth and stability by increasing the disposable income of Californians and California businesses in the longer term making it possible that new businesses may be created to provide compliance services and to supply energy efficient products.

Therefore, the CEC concludes that the proposal may create some additional business and is unlikely to eliminate existing businesses within the state of California. Given the uncertainty, and the many unknown variables in making these projections, the CEC is conservatively assuming there will be no additional businesses created.

**C. The expansion of businesses currently doing business within the State of California.**

California businesses producing energy efficient products and technology that meet or exceed the proposed Standards are likely to expand their sales of those products and technologies due to the implementation of these proposed Standards. Therefore, the CEC concludes that businesses currently doing business in California to provide energy-efficient products and services may be expanded.

**D. The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.**

Beyond the monetary benefits, the CEC estimates that the implementation of the 2025 Energy Code updates will reduce anticipated increases in statewide annual electricity demand. This will, in turn, result in a net reduction in the emissions of greenhouse gases, nitrous oxide, sulfur oxides, carbon monoxide, and particulate matter attributable to electricity generation and on-site combustion. Improved air quality as a result of reduced emissions will result in health benefits to Californians and help mitigate costs related to health and other issues associated with climate change. The reduction in statewide electricity demand will also marginally decrease water consumption in the electricity generation sector.

The proposed regulations will not adversely affect the health and welfare of California residents, worker safety, or the state's environment.

**ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS**

Due to the complexity of the analysis, refer to the Economic and Fiscal Impact Statement (STD. 399) for the estimated cost of compliance, estimated potential benefits, and related assumptions used for building standards found on the CEC website at: <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-building-energy-efficiency>.

**DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS**

These proposed regulations do not duplicate or conflict with any federal regulations contained in the Code of Federal Regulations.

**FOR FURTHER INFORMATION**

Please direct general inquiries concerning aspects of the rulemaking process to:

Corrine Fishman, MA  
Regulations Manager Efficiency Division

[corrine.fishman@energy.ca.gov](mailto:corrine.fishman@energy.ca.gov)

Specific questions regarding the substantive and/or technical aspects of the proposed changes to the building standards should be addressed to:

Payam Bozorgchami, PE  
Senior Civil Engineer  
Building Standards Branch  
[payam.bozorgchami@energy.ca.gov](mailto:payam.bozorgchami@energy.ca.gov)

### **INSTRUCTIONS FOR RECEIVING NOTICES AND DOCUMENTS IN THIS PROCEEDING**

To stay informed about this project and receive documents and notices of upcoming workshops and hearings as they are filed, please subscribe to the subscription list, which can be accessed at <https://www.energy.ca.gov/subscriptions>.

The subscription list sends out email notifications and direct links when documents and notices are filed in the proceeding docket. If you are unable or do not wish to sign up for the subscription list but still would like to receive documents and notices, please contact the contact person listed in this notice.