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CABEC COMMENTS ON THE 2019 TITLE 24, PART 6, BUILDING ENERGY EFFICIENCY STANDARDS

The California Association of Building Energy Consultants (CABEC) is a trade organization representing California's energy consulting industry. Our members prepare and execute energy model simulations used to demonstrate compliance with the energy code for their clients: architects, designers, builders, engineers and homeowners. We have worked closely with CEC staff and have participated in the development of the energy code since 1985. We greatly appreciate staff's willingness to work with us and hear our ideas. We are truly on the front line of implementing the energy code.

We strongly support the CEC's goals of ZNE and the method by which they are achieving them. CABEC's Advocacy Committee and Board of Directors harbor an overall concern about the complexity and enforceability of certain aspects of the energy code compliance documentation process and formally request that staff involves CABEC representatives in the process of developing the compliance software, the compliance forms, and the compliance manuals, work that will happen in the near future.

We have the following comments on the 45-day draft language:

Comment #1: Heat pump modeling defaults

CABEC is concerned that the language stated in §150.1(b)3Bv regarding Heat Pump Rated Heating Capacity may cause a compliance issue. The proposed code language states:

When performance compliance requires installation of a heat pump system that meets or exceeds specified heating capacity values at 47 degrees F and 17 degrees F, the installed system shall be field verified in accordance with the procedures specified in Reference Residential Appendix RA3.4.4.2.

Knowing what the heating capacity values are for heat pumps at 47 degrees F and 17 degrees F may be difficult to determine at the time the CF1R is completed. Heat pump capacities at 17F and 47F are not specified in the CEC Appliance Efficiency Directory (MEADBS) and may not be known until the equipment is installed.

Often, the equipment make and model number is unknown at the design phase, thereby requiring energy consultants to use heating capacity values that may not be accurate or correct as a place-holder. If the place-holder heating capacity values are greater than the values of the installed equipment, it would cause the system to fail the HERS verification at the end of construction when the builder has very few options besides requiring a rerun of the CF1R with adjusted capacities. This is especially true in residential single-family homes, where mechanical drawings with equipment schedules are typically not provided at permit. This process flaw has the potential to create ongoing compliance issues.

Recommendation:

We would like to encourage the Energy Commission to develop default heating capacity values, or a calculation method to determine maximum 47 degrees F and 17 degrees F values for heat pumps, so that energy consultants would not trigger the Heat Pump Capacity HERS verification unknowingly. This could be accomplished through the performance software by providing a check box that will apply default values for heating capacities through an auto-sizing function to develop the capacities.

150.1(b)2B

*v. **Heat Pump Rated Heating Capacity.** When a heat pump with electric resistance supplemental heating is installed, the installed system shall be field verified in accordance with Reference Residential Appendix RA3.4.4.2. and the installed heat pump heating capacity shall be greater than or equal to the heat pump heating capacity values in the performance simulation as reported on the Certificate of Compliance.*

RA3.4.4.2

For performance compliance when a heat pump with electric resistance supplemental heating is installed, the installed heat pump equipment shall be verified according to the procedure specified in this section. The verification shall utilize certified rating data from the AHRI Directory of Certified Product Performance at <http://www.ahridirectory.org> or another directory of certified product performance ratings approved by the Energy Commission for determining compliance.

The procedure shall consist of visual verification of installation of the following system equipment components and confirmation that the installed equipment is rated to provide the required heating capacity:

(a) The manufacturer name and the model number of the outdoor unit or package unit.

(b) The manufacturer name and the model number of the inside coil if applicable.

(c) The name of the product directory used to certify the system performance.

(d) The certification number of the installed system if certification numbers for listed products are published by the product directory.

(e) The rated heating capacity at 47 degrees F. (f) The rated heating capacity at 17 degrees F.

(f) To comply with Section 150.1(b)2Bv, the verified heat pump heating capacity at 47 degrees F and 17 degrees F shall be greater than or equal to the performance simulation heating capacity at 47 degrees F and 17 degrees F of the heat pump reported on the Certificate of Compliance.

Comment #2: QII in additions over 700 ft.

CABEC is concerned that the language stated in §150.2(a)1A regarding additions greater than 700 ft. meeting the prescriptive requirements in §150.1(c), which include QII may cause a compliance issue. The proposed code language states:

§150.2(a)1A. Additions that are greater than 700 square feet shall meet the prescriptive requirements of Section 150.1(c), with the following modifications:

§150.1(c)1E. All buildings shall comply with the Quality Insulation Installation (QII) requirements shown in TABLE 150.1-A or B. When QII is required, insulation installation shall meet the criteria specified in Reference Appendix RA3.5.

Additions, which consist of converting an existing unconditioned space to newly conditioned space may not be able to meet all the QII requirements referenced in RA3.5. These include difficulty air-sealing the envelope in areas of the existing structure that may be inaccessible, and installing insulated headers in areas where the header is existing.

Recommendation:

We would like to encourage the Energy Commission to include the following modifications to §150.2(a)1A:

iv. Newly conditioned spaces, additions that consist of the conversion of existing spaces from unconditioned to conditioned space (e.g. garages, basements) do not need to meet the following sections of RA3.5:

- *Window and door header requirements where existing wall sections are converted to exterior walls adjacent to conditioned space (Sections RA3.5.3.2.9, RA3.5.4.2.9, RA3.5.5.2.9, RA3.5.6.2.9, RA3.5.7.2.7, and RA3.5.8.2.7).*
- *Air sealing of inaccessible areas of existing wall sections, including wiring and plumbing penetrations not accessible to sealing. (Sections RA3.5.3.2a, RA3.5.4.2a, RA3.5.5.2a, RA3.5.6.2a).*

Comment #3: Ventilation airflow requirement referencing

CABEC is concerned that §120.1(b)2A & B only references ASHRAE 62.2 for determining the required ventilation airflow rates, but it does not list a reference in the Energy Standards where this equation is found. We believe it is important to reference all ventilation rate requirements and equations in the Standards rather than outside sources.

We recommend that applicable ventilation rate equation referenced in section 4 of ASHRAE 62.2 be included in §120.1(b)2B, and any supporting procedures necessary for determining the ventilation airflow rate be added to the Nonresidential Appendices and referenced in §120.1(b)2B.

CABEC is concerned that §150.1(o) only references ASHRAE 62.2 for determining the required ventilation airflow rates, but it does not list a reference in the Energy Standards where this equation is found. We believe it is important to reference all ventilation rate requirements and equations in the Standards rather than outside sources.

Recommendation:

We recommend that applicable ventilation rate equation referenced in section 4 of ASHRAE 62.2 be included in §150.1(o), and any supporting procedures necessary for determining the ventilation airflow rate be added to the Residential Appendices and referenced in §150.1(o).

Comment #4: PV Verification

Due to the complexity of verifying PV solar installations, including the required training, equipment, time demands, and workload time restraints, local building departments are not currently capable nor equipped to perform the solar PV installation verifications. We feel that this verification should be left in the hands of a HERS Rater, who is typically already present on most building projects, and has been trained and certified for this task. Due to the NSHP program, the HERS solar PV certification is already in place and has been functioning properly for numerous years. The importance of proper verification, as required by the NSHP program, demonstrates the value of such a measure.

Recommendation

We would like to encourage the Energy Commission to require a HERS rater to verify the installation of PV systems.