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CBIA Comments on CEC 2022 Update of Part 1 & 6

Additional submitted attachment is included below.

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June 16, 2021

California Energy Commission
Docket 21-BSTD-01
1516 Ninth Street
Sacramento, Ca 95814

RE: CBIA Comments on the 2022 Update of Title 24, Parts 1 & 6

Dear Commissioners,

The California Building Industry Association (CBIA) is a statewide trade association representing over 3,100 member-companies involved in residential and light commercial construction. CBIA member-companies are responsible for over 85% of the new single-family homes built in California each year.

The following comments relate to the California Energy Commission's "*Express Terms 2022 Energy Code, Title 24 Parts 1 and 6*" as released to the public on May 6, 2021.

General Comments

Without question, CBIA would have preferred the CEC refrain from changing the prescriptive measures to begin a transition to electric space and water heating during this update of the standards and instead, promote increased market penetration of this technology via financial and regulatory incentives. For example, the market penetration of heat pump water heaters in new residential construction is currently 2%. Using the CEC's solar mandate as an example, the industry would have preferred to work with the CEC and stakeholders to see that market penetration increase to 25%-30% before a change was made to the prescriptive measures.

However, CBIA understands significant pressure has been placed on the CEC during the past six months to move forward with an all-electric mandate now. While we would question whether the CEC has the legal authority to mandate all-electric construction, CBIA does recognize the CEC is taking a significant step towards decarbonizing new residential construction by requiring the compliance budget of the dwelling to be calculated using either electric space or water heating technology. While a builder can still choose to install gas space and water heating, the CEC will require substantial efficiency measures to offset the carbon associated with continued gas use for both of those appliances.

And, as was the case with rooftop solar, CBIA will continue to work with the CEC in those efforts that incentivize voluntary decarbonization of both new and existing construction. Specifically, CBIA strongly supports the CEC's proposed compliance credit for those builders who choose to install heat pump technology for both space and water heating. Also, CBIA is working with other stakeholders to support financial incentives to help reduce the up-front cost of decarbonization and energy storage technology. The combination of these efforts will serve to increase the market penetration of these technologies in new construction.

Specific Comments/Concerns

Part 1, Administrative Regulations
Section 10-115(a)(8)

8. Original Building Purchaser Choice. *Whenever a newly constructed building is offered for sale as being eligible to be a participating building in a community shared solar electric generation system and/or community shared battery storage system, the potential original home purchaser shall also be offered the option instead to comply with the requirements of Section 150.1(b)1 through installation of an on-site solar electric generation system.*

Comment: While CBIA supports the "opt-out" language being added in 10-115(a)(4), **we strongly oppose the proposed addition of a new mandate for the builder to offer as a design option the installation of rooftop solar** for those projects planning to use the community solar (CS) compliance option. If the homebuyer (of a home receiving CS) wants rooftop PV, proposed amendments to 10-115(a)(4) will allow for rooftop PV installation as soon as they take possession of the home or at some later point down the road. Homeowners should have the ability to modify their homes after purchase, providing they still meet the code in effect when the house was initially built.

However, the language proposed in 10-115(a)(8) effectively removes the ability of the builder to provide CS as a standard feature. Instead, it creates the precedent wherein **the CEC requires the builder to offer a set of design options** to **all** potential buyers.

This proposal is unprecedented for a state building code and will be largely unworkable in the field for the following reasons:

- Depending on the market, the home may be completed and energized **before** there is a buyer. This raises the question: at what point in time does the builder no longer have to offer rooftop PV?

- What happens to the cost of the rooftop PV system when it becomes a mandated "design option" for the builder who would prefer to use CS? A last-minute change from the standard design will always come at a higher cost, and this will undoubtedly be the case for rooftop solar as the builder will need to deal with the last-minute logistics of arranging for the purchase, installation, and interconnection of a single rooftop solar system in a project where other homes are receiving renewable energy from a community solar resource.

- There is also the issue of cost-effectiveness and home affordability. The Public Utilities Commission is conducting a proceeding to update the Net-Energy-Metering rates for Investor Owned Utilities. It is highly likely that some level of reduction in the economic benefits attributed to rooftop solar will be adopted and apply to newly constructed homes with solar. A home receiving community solar bypasses this source of future economic uncertainty. Also, a home receiving community solar will not need to absorb the up-front additional cost associated with a rooftop solar system. This can be very attractive to a potential homebuyer who is struggling to qualify for a new home.

- Regarding the small or medium size CS provider, which may or may not be a utility, this proposal will hurt the economic viability of the proposed CS system if there is a level of uncertainty regarding whether the community solar resource will receive the level of use intended. With that level of uncertainty, why would someone want to take the financial risk of becoming a CS provider or someone who would fund CS projects? In contrast, the larger,

utility-scale CS provider can weather this proposed change to the administrative regulations, which probably is not the intent of the CEC.

- It also creates a system that favors rooftop solar over CS as the same regulation does **not** require a builder who plans to install rooftop PV to offer CS to the buyer.

Lastly, as we have already seen in the Sacramento region, where CS is readily available as a compliance option, the lion's share of builders is still going with rooftop solar. The concerns we heard 14 months ago that CS was going to kill rooftop solar in the SMUD region never materialized.

Part 6, California Energy Code
Section 1150.0(m)1B (as proposed by CEC)

B. Portions of supply-air and return-air ducts and plenums of a space heating or cooling system shall either be insulated to:
   i. a minimum installed level of R-6.0, or
   ii. a minimum installed level ~~of R-4.2~~ as specified in subsections a or b below when the duct system is located entirely in conditioned space as confirmed through field verification and diagnostic testing in accordance with the requirements of Reference Residential Appendix RA3.1.4.3.8.
      a. R-1 for ducts with a surface emissivity greater than or equal to 0.8
      b. R-3 for ducts with a surface emissivity less than 0.8

Exception 1 to Section 150.0(m)1B: Portions of the duct system located in wall cavities are not required to be insulated if all of the following conditions are met:
   i. The ~~cavity, duct or plenum~~ cavity containing the non-insulated portion of the duct system is located entirely inside the building's thermal envelope as confirmed by visual inspection.
   ii. The non-insulated portion of the duct system has outer cross-sectional dimensions that are within 0.25 inch of the inner cross-sectional dimensions of the cavity.
   iii. At all locations where non-insulated portions of ~~non-insulated cavities,~~ the duct system, ~~or plenums~~ make a transition into unconditioned space, the transition ~~shall be~~ is air-sealed to prevent air infiltration into the cavity and ~~be~~ insulated to a minimum of R-6 as confirmed by visual inspection.

Comment: For decades, the CEC has been encouraging the industry to place ducts in conditioned space as an effective way of reducing energy loss associated with duct leakage in unconditioned attics. It now appears the industry is ready to move forward with a variety of new products/systems that will offer ducts in conditioned space for production-style housing. Unfortunately, the amendments proposed by the CEC in the language reprinted above will further reduce the options for installing ducts in conditioned space by effectively banning the use of uninsulated ducts in conditioned space. The language above would only allow uninsulated ducts in fully exposed locations, which is not a realistic design option for aesthetic reasons. Also, don't insulation requirements need to be cost-effective?

The realistic option for uninsulated ductwork is to run it in cavities within the building's thermal envelope. This currently requires insulation of R-4.2, which is reduced to R-3 or R-1 in the Express Terms. However, once the ducts are located within the building's thermal envelope, we would question the need for **any** level of required duct insulation. After all, what's the point of requiring duct insulation when the duct is already within the building's thermal envelope?

Regarding condensation concerns, we have heard from builder members who construct homes in states with higher humidity levels than those found in California, and they have not encountered condensation problems. Based on this experience, we are confident that uninsulated ducts can be used in California without issue.

CBIA would respectfully request the language in the Express Terms be amended to allow for the unrestricted use of uninsulated ducts in the building's conditioned space. This can be achieved by amending Section 150.0(m)1B to read:

150.0(m)1B:
Portions of supply-air and return-air ducts and plenums of a space heating or cooling system shall ~~*either*~~ be insulated to~~*i*~~. a minimum installed level of R-6.0~~*, or*~~

~~*ii. a minimum installed level of R-4.2 when the duct system is located entirely in conditioned space as confirmed through field verification and diagnostic testing in accordance with the requirements of Reference Residential Appendix RA3.1.4.3.8.*~~

EXCEPTION 1 to Section 150.0(m)1B: Portions of the duct system located in wall cavities***, ceiling cavities, floor cavities, soffits, chases, or plenums*** are not required to be insulated if the following conditions are met:

i. The cavity, duct or plenum is located entirely inside the building's thermal envelope as confirmed by visual inspection.

ii. At all locations where portions of non-insulated cavities, ducts, or plenums make a transition into unconditioned space, the transition shall be air-sealed to prevent air infiltration into the cavity and be insulated to a minimum of R-6 as confirmed by visual inspection. ***Any other penetration into a cavity containing a duct shall be caulked, gasketed, or otherwise sealed to limit infiltration and exfiltration.***

Part 6, California Energy Code
Section 150.0(a) (as proposed by the CEC)

150.0(a) Roof Deck, Ceiling and Rafter Roof Insulation. The opaque portions of ceilings and roofs separating conditioned spaces from unconditioned spaces or ambient air shall meet the requirements of Items 1 through ~~3~~ 4 below:

1. In climate zones 4 and 8 through 16 roof decks in newly constructed attic systems shall be insulated to achieve an area-weighted average U-factor not exceeding U=0.184.
   EXCEPTION to Section 150.0(a)1: No roof deck insulation is required when ducts and air handlers are located in conditioned space.

Comment: The Asphalt Roofing Manufacturing Association (ARMA) has submitted comments to the CEC voicing concern over a possible conflict in the proposed amendments (See Docket 19-BSTD-03, TN 236877 and TN 237717). CBIA would respectfully request the CEC investigate this concern and determine if a change should be made to the standards or if an explanation in the Energy Conservation Manual would suffice in addressing any potential conflict.