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**Insulation industry (NAIMA, ACC, PIMA) Comments on Pre
Rulemaking Workshops**

Additional submitted attachment is included below.



VIA E-COMMENT

October 20, 2023

J. Andrew McAllister, Ph.D.
Commissioner
California Energy Commission
Docket Unit, MS-4
715 P Street
Sacramento, CA 95814

RE: Docket No. 22-BSTD-01, 2025 Energy Code Pre-Rulemaking; Comments by the North American Insulation Manufacturers Association, American Chemistry Council and Polyisocyanurate Insulation Manufacturers Association

Dear Commissioner McAllister:

Stakeholder concerns raised by the Commission's recent workshop on changes to the Time Dependent Valuation ("TDV") metric highlight the need to maintain building envelope efficiency standards to manage summer cooling and winter heating loads. Envelope efficiency reduces homeowner utility expenses and allows for smaller sized heating and cooling equipment. Envelope improvements in electrified buildings offer great value to the electric grid,¹ reducing peak electric load by approximately 7-10%.² Unfortunately, the Title 24 residential code, despite setting strong prescriptive standards for high performance attic ("HPA") and high performance wall ("HPW") insulation in 2016, allows for envelope efficiency to be traded away against other measures. These trade-offs continue to occur in most of the new construction in the state.

We contracted with TRC to analyze trends in current adoption of high- performance attic and wall measures in homes built in California. To do this, TRC pulled project data from the CalCERTS database for projects under 2019 Title 24 between January 1, 2020 and February 28, 2023. To assess building techniques, TRC analyzed the CalCERTS registry data to identify projects that

¹ The Department of Energy's National Roadmap for Grid-Interactive Efficient Buildings (May 2021) highlights that envelope energy efficiency is one of the best available measures to realize both aggregate and peak demand building energy savings. That report concluded that energy envelope measures have higher peak demand energy savings than measures like water heating, refrigeration, electronics, appliances, and lighting measures. The energy saved by envelope efficiency is highly valuable to the power system on a per-MWh basis and should be prioritized accordingly.

² <https://www.aceee.org/topic-brief/2023/07/empowering-electrification-through-building-envelope-improvements>.

qualify for HPW and HPA, determined by opaque surface assemblies. TRC reviewed data for a total of 3,851 low-rise multi-family buildings and 52,828 single-family projects from the CalCERTS Registry.

High Performance Attic (“HPA”) Adoption: TRC’s analysis points to a low level of adoption of HPA insulation in California’s new residential construction. Among the 52,828 projects included in the analysis, only 1,164 incorporated HPAs. The remaining projects did not fulfill the prescriptive requirements for below roof deck insulation, ceiling insulation, radiant barrier, or ducts in conditioned space.

High Performance Walls (“HPW”) Adoption: Of the 52,828 homes examined, 3,927 homes complied with the code’s high performance wall prescriptive requirement. The analysis also revealed homes with wall construction assemblies that did not meet the 2019 code prescriptive requirements for the above-grade walls. Specifically, 500 projects only installed the mandatory wall insulation requirements (u-0.102 factor). Approximately 13,000 projects incorporated various forms of wall cavity insulation without installing any exterior sheathing insulation. Such assemblies are more accurately described as low performance.

Mechanical Trade-Offs: TRC observed that 94% of the total single family projects without HPA or HPW installed high efficiency heating equipment and cooling equipment. For single-family projects with only HPW or only HPA installed, TRC observed similarly high rates of high efficiency heating and cooling equipment adoption.

Recommendation for Bifurcated Efficiency Energy Design Ratings (“EDR”): The logical inference from this data is that builders are overwhelmingly trading off HVAC equipment that exceeds minimum federal efficiency standards against high performance insulation requirements set by Title 24. Additionally, based on these results, 90%+ market penetration of HVAC space heating and cooling equipment indicates that the market has been largely transformed and the next place to capture savings is in the envelope.

It is time for California to promote a highly efficient thermal envelope in the code by strictly limiting trade-offs. One way to address this in the 2025 update is to establish three separate energy design ratings – Building Envelope Efficiency, Building Heating and Cooling Systems, and Solar Electric Generation and Demand Flexibility – combined to arrive at Total EDR. Trade-offs should be prohibited between these three separate EDR categories. This approach avoids mandatory thermal envelope or R-value or U-factor requirements and provides builders with flexibility while still delivering an advanced thermal envelope.