



Shaping Tomorrow's Global
Built Environment Today

1255 23rd Street NW, Suite 825 ▪ Tel 202.833.1830 ▪ www.ashrae.org

Sarah E. Maston, P.E.
ASHRAE Society President, 2026-2027

Phone: (717) 725-8231
Email: Sarah.Maston@collierseng.com

July 9, 2026

David Hochschild
Chair
California Energy Commission
715 P Street
Sacramento, CA 95814

Re: Docket 25-BSTD-03 – 2028 Energy Code Pre-Rulemaking

Sent via email to: docket@energy.ca.gov

Dear Chair Hochschild:

ASHRAE, founded in 1894, is a technical and professional society of more than 55,000 members, including over 3,000 in California, that focuses on building systems, energy efficiency, indoor air quality, refrigeration, and sustainability. Through research, standards writing, publishing, certification and continuing education, ASHRAE shapes tomorrow's global built environment today.

ASHRAE is pleased to submit comments on the 2028 California Energy Code Pre-Rulemaking. **ASHRAE supports the goals of encouraging efficient building decarbonization where possible and promoting demand flexibility** that are stated in the CEC's 2028 Energy Code "Areas of Interest" for Nonresidential Buildings as part of the Energy Code Staff Pre-Rulemaking Workshop on June 23, 2026.

We recommend the 2028 California Energy Code reference the most recent edition of ANSI/ASHRAE/IES Standard 90.1, *Energy Efficiency in Sites and Buildings Except Low-Rise Residential Buildings*, which is the 2025 edition. Standard 90.1 has been the benchmark for commercial building energy codes in the United States and a key basis for codes and standards around the world for more than 35 years. It is an indispensable reference for engineers and other professionals involved in design of buildings and building systems. ASHRAE Standard 90.1 is under continuous maintenance by the 90.1 Standard Project Committee, and energy performance has improved in each successive edition, resulting in major improvements over time. Over the period of 2004-2019, which included six editions of Standard 90.1, energy performance improved by 36%. Updating to the most recent 2025 edition from the 2022 edition

will help keep California on track to continue to achieve these energy efficiency benefits in a timely manner.

The latest edition of Standard 90.1, the 2025 edition, incorporates over 100 addenda that have been approved since the 2022 edition. This includes updates to the building insulation levels and fenestration requirements, and restructured lighting and power sections with new provisions for electric vehicle spaces, energy monitoring, and display of building energy use data. The renewable energy provisions, energy credit framework, and energy cost budget pathway have all been updated. The 2025 edition also increases the minimum efficiency requirements for a wide range of equipment to reflect the latest federal test procedures and industry rating standards for products.

We also recommend the 2028 code update reference the International Green Construction Code (IgCC) 2024, powered by ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2023, *Standard for the Design of High-Performance Green Buildings*. The IgCC is a model code providing a whole systems approach to designing, building, renovating, and operating high-performance green buildings. From site location to energy use to recycling, this code sets the foundation for green buildings by addressing site sustainability, water use efficiency, energy efficiency, indoor environmental quality, and materials and resources. The 2023 edition of Standard 189.1 serves as the technical content of the 2024 IgCC.

In addition, we appreciate that the California Energy Code has historically referenced multiple ASHRAE standards in each update, and recommend that the Energy Commission continue to update its references to the latest editions of the following standards in the 2028 Energy Code:

- ASHRAE Guideline 36-2024, *High-Performance Sequences of Operation for HVAC Systems*
- ANSI/ASHRAE Standard 55-2023, *Thermal Environment Conditions for Human Occupancy*
- ANSI/ASHRAE Standards 62.1-2025 and 62.2-2025, *Ventilation and Acceptable Indoor Air Quality*
- ANSI/ASHRAE Standard 84-2024, *Method of Testing Air-to-Air Heat/Energy Exchanger*
- ANSI/ASHRAE Standard 154-2022, *Ventilation for Commercial Cooking Operations*

Lastly, we would like to share that ASHRAE's Center of Excellence for Building Decarbonization (CEBD) is working to advance a range of technical resources that may be valuable to the CEC's 2028 energy code update:

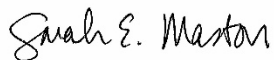
- *Decarbonizing Building Thermal Systems: A Guide for Applying Heat Pumps and Beyond*, developed with the U.S. Department of Energy through NREL. This guide addresses heat pump application and sizing, refrigerants, electrical requirements, and control and operation strategies for commercial and multifamily buildings, relevant to the proposed expansion of heat pump replacement requirements.
- *Grid-Interactive Buildings for Decarbonization: Design and Operation Resource Guide*, which addresses how buildings can maximize carbon reduction through interaction with

the electric power grid, relevant to the proposed updates to solar photovoltaic and battery energy storage system requirements.

- *Building Decarbonization Retrofits for Commercial and Multifamily Buildings*, which details best practices for planning and executing decarbonization retrofits, including 19 case studies and practical guidance on retrofitting HVAC systems, relevant to the proposed requirements for equipment replacement and commissioning in nonresidential buildings.
- Ongoing research projects:
 - *Expand and Update the ASHRAE Service Life Table in the HVAC Applications Handbook*, developing updated service life estimates for major HVAC equipment and components, including equipment relevant to electrification such as VRF systems, air-to-water heat pumps, and heat pump water heaters. Estimated completion March 2027.
 - *Refrigerant Leakage Rate Emissions Tracking*, developing updated refrigerant leak-rate assumptions normalized by equipment type, age, and location to replace the industry's current fragmented and outdated flat-rate assumptions. Estimated completion December 2027.

We appreciate your consideration of the comments submitted by ASHRAE. Please let us know if ASHRAE can expand on any of the points above or can be of further technical assistance by contacting me, or having your staff reach out to GovAffairs@ashrae.org.

Sincerely,



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