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Bradford White Corporation Comments to Nonresidential Water Heating

Additional submitted attachment is included below.

April 24, 2026

Commissioner Andrew McAllister
California Energy Commission
715 P Street
Sacramento, California 95814
Submitted Electronically to: California Energy Commission : e-comment : Submit Comment

Re: Docket # 25-BSTD-03 Codes and Standards Enhancement (CASE) Initiative: Nonresidential Water heating

Dear Commissioner McAllister,

On behalf of Bradford White Corporation (BWC), we would like to thank you for the opportunity to comment on the CASE Initiative: Nonresidential Water Heating.

BWC is an American-owned, full-line manufacturer of residential, commercial, and industrial products for water heating, space heating, combination heating, and water storage. We are proud to have made our own significant investments in products that provide substantial energy conservation and environmental benefits, such as ENERGY STAR®-certified electric heat pump water heaters. As a testament to our efforts, we have been recognized as an ENERGY STAR Partner of the Year for five consecutive years. In California, a significant number of individuals, families, and job providers rely on our products for their hot water and space heating needs

General Comments

BWC appreciates the intent of the CASE initiatives to help improve product efficiency, performance, and customer satisfaction with non-residential water heating. While the proposed measure updates may reduce energy consumption in some cases, the code proposals are written in an overly prescriptive manner, leaving little room for manufacturer design and innovation. While we do not disagree that improperly installed water heating systems lead to efficiency loss, performance degradation and the possibility of not meeting the building demand for hot water, specifying installation standards, especially if inconsistent with manufacturer guidelines, may create further challenges with equipment as well as limit creative solutions.

To address the specific proposed code updates and questions asked of the CASE team, our responses are as follows:

Advanced Pump Controls

Title 24 currently requires, as part of its mandatory measures, pump controllers to be installed which can automatically shut off, after a set time or other trigger such as reduced hot water demand. While this measure may save pumping energy and help with water heater stratification, it may also present some risks,

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specifically in systems using a mixing valve to temper the water. Mixing valves, whether they are wax, bi-metal or electronically controlled valves, require a minimum flow rate to be maintained in order to function properly.[1] When reviewing mixing valve manufacturer specifications, while an electronic valve may be able to maintain temperature with 0 gallons per minute flow from the heater, it still requires a minimum flow rate from the recirculation loop in order to maintain the temperature set point. The starting and stopping of flow, as specified in the mandatory pump control requirements, runs the risk of creating pockets of either cold or hot scalding water. This problem is exacerbated in larger commercial water heating systems with higher flow rates.

While we do not dispute the value of the proposed measure adding additional control capability, we do dispute the mandatory requirement of automatic shutoff. As the CASE report presented in the findings, controls are either bypassed or disabled to allow for constant flow. This practice is not done out of negligence by the contractor, but rather to ensure a safe and comfortable service hot water system. When flow is shut down, mixing valves do not work. As part of this proposal, we strongly urge the CASE team to consider removing the mandatory requirement for automatic shutoff and instead include a requirement for a maximum allowable flow rate during times of low or no demand (e.g. 0.50 gallons per minute). We encourage the CASE team to evaluate mixing valve manufacturer's product literature to determine an appropriate flow rate. Lastly, if it is determined that a minimum flow rate is required to properly maintain temperature, those assumptions should also be taken into account when evaluating the return to primary proposal, and whether a split system heat pump water heater (HPWH) could keep up with the minimum required flow rates.

Require Return to Primary Configuration

The return to primary (RtP) prescriptive pathway is proposed to be the new standard to compare against split HPWH systems with recirculation in nonresidential buildings. Also proposed as an alternative pathway is the use of a split system HPWH on the NEEA Tier 3 qualified product list utilizing standard configurations and installed per manufacturer's requirements.

Notably, RtP was not permitted in the prescriptive pathway during the 2025 code cycle and was only allowed under limited alternative pathways. The current proposal represents a significant policy shift by elevating RtP from a non-option to the default prescriptive baseline configuration.

As acknowledged by the CASE team in section 3.3.2.1 Current Design and Construction Practices "Currently, there is no best practice for designing and constructing the proposed measure. However, several lab test and field studies provide information on RtP system configurations." Establishing a prescriptive baseline based on a configuration for which there is no established best practice for design, installation, commissioning , or operation, and which relies primarily on controlled lab studies and a limited number of field demonstrations does not indicate sufficient technical or market readiness to justify its adoption as the standard design.

Furthermore, as discussed above in the advanced pumping controls, RtP will require the use of mixing valves and pumps, and will likely face the same issues with minimum flow rates for mixing valve functionality and safety. Based on the limited data, the absence of standardized best practices, and the acknowledged need for additional design guidance, training, and field validation to support this measure, BWC does not recommend advancing RtP configuration as the new prescriptive baseline in the 2028 code cycle. Instead, we would

[1] PNV-200-LF - Proton Electronic Mixing Valve

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support this measure moving forward as an additional option, which would allow more time for standard design practices to mature and be measured for performance in the field.

Requirements for Unitary Heat Pump/Electric Resistance (HP/ER) Hybrid Heaters

The proposed requirements for unitary HP/ER HPWHs is intended to prevent, to the extent possible, the use of electric resistive heat in central water heating system design. While the proper sizing, plumbing, and placement of these products to ensure they perform is important, this measure proposes a major redesign hurdle for manufacturers to incorporate into new products. The unitary product, by design, is built to balance performance and convenience, while delivering adequate hot water to a building. Adding requirements that limit the use of electric resistance, by programming compressor cut-off temperatures, may severely limit the ability of a unitary HPWH to provide hot water and add significant building cost. Building engineers will have to design larger mechanical rooms and/or roof space to account for larger or more HPWH's to satisfy the hot water load without electric resistance, a costly endeavor that may limit space that can be monetized by the building owner.

Even if a compressor cut-off temperature were added as a product design feature, that feature alone would not prevent the installation challenges cited by the CASE team, including but not limited to: adequate thermal resources, condensation management, mixing valve sizing, plumbing configuration etc. In January 2026, water heater manufacturers and members of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) along with several third-party stakeholders, convened a working group to specifically address the ventilation challenges outlined in the non-residential water heater ventilation cleanup code change proposal. The outcome of the working group is to develop an industry guideline for how water heater manufacturers include ventilation installation instructions in their product installation manuals. BWC recommends that cut-off temperatures not be included in the change code and instead operational temperatures are specified in manufacturer installation manuals as intended through the AHRI working group guideline, AHRI Guideline U-202x (SI/I-P) - Residential Heat Pump Water Heater Installation. With the information available in manufacturer product literature, designers and engineers can select the appropriate equipment for their buildings.

In summary, and reflected in our comments above, BWC believes that the 2028 code proposals surrounding nonresidential water heating should not prescriptively require any design features.

BWC appreciates the opportunity to comment, and we look forward to continuing our collaboration with the CASE Team and California Energy Commission on this important code development.

Respectfully Submitted,

Bradford White Corporation

Tom Gervais
Senior Director, Regulatory Affairs

Cc: E. Truskoski; R. Wolfer; M. Corbett; B. Ahee; J. Ferrante; D. Hubbard