BRADFORD WHITE
WATER HEATERS

California Energy Commission
DOCKETED
15-BSTD-01
TN # 75544
MAR 30 2015

March 30, 2015

California Energy Commission
Attention: **Docket No. 15-BSTD-01**
Dockets Office
1516 Ninth Street, MS-4
Sacramento, CA 95814

Re: Proposed Building Standards of the California Energy Commission

To Whom It May Concern:

On behalf of Bradford White Corporation (BWC), thank you for the opportunity to comment on the proposed building standards in the California Code of Regulations, Title 24, Part 1, Chapter 10, and Part 6. Please find our comments below.

BWC disagrees with the approach taken related to what type of water heaters are installed in new residential buildings. There are multiple prescriptive options that favor either a tankless or storage type water heater. The following four current requirements for the water heating system already more than level the playing field toward use of a tankless water heater:

(1) A 120V electrical receptacle that is within 3 feet from the water heater and accessible to the water heater with no obstructions; and
(2) A Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; and
(3) condensate drain that is no more than 2 inches higher than the base of the installed water heater, and allows natural draining without pump assistance, and
(4) A gas supply line with a capacity of at least 200,000 Btu/hr.

In addition to those requirements, the following new, extra requirements when installing a storage water heater will likely also lead a builder into installing a tankless water heater:

(1) A compact hot water distribution system that is field verified as specified in the Reference Appendix RA4.4.16; or
(2) All domestic hot water piping shall be insulated and field verified as specified in the Reference Appendix RA4.4.1, RA4.4.3 and RA4.4.14.

Bradford White Corporation markets both tank and tankless water heaters. We introduced our first tankless product in the 1980s, and we have been in the tankless water heater business continuously since 2004. We disagree with the approach and do not believe the solution you are proposing is proper. While builders are essentially incentivized to install a tankless water heater, we do not understand why you need to go so far as to require them. This takes away from any opportunity a water heater manufacturer has to innovate a product that is at least as efficient as a tankless water heater. Some future technologies are in development now, or have been already

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introduced, e.g. hybrid water heaters. These products have the potential to be more efficient, as well as eliminate some of the negatives that tankless water heaters have (e.g. cold water sandwich).

Rather than making one prescriptive option more attractive, BWC recommends that the options be technology blind and focus on the rated efficiency of the product. It is important to note that there are storage type water heaters that are just as efficient as some tankless water heaters on the market. BWC recommends a 0.78EF as the level to meet without requiring any additional upgrades to other parts of the home. So, if a water heater has an efficiency of 0.78EF, it does not require any additional changes to the home. If a water heater has an efficiency less than 0.78EF, then additional efficiency upgrades need to be applied to the rest of the home.

Regardless whether the CEC's approach is changed or not on what technology options are used, we believe that the amount of water used overall should be factored into to the calculations. In the "Water Heating Design Guide" prepared for the California Energy Commission dated December 2012, there are several references on how more water is used with tankless water heaters. For example, "a final human component of the distribution system delivery inefficiency, is how the occupant responds to the time delay between start of water draw and availability of hot water at the use point. Slow hot water delivery times may support wasteful behaviors leading to more waste, as the user is trained to become less mindful of when hot water actually arrives." And, "tankless units undergo an initial pre-firing sequence (which takes a few seconds), and then must come to temperature before useful heat is delivered from the unit. This results in added delay in hot water delivery, resulting in increased water waste and potential homeowner inconvenience."

In addition to the excerpts noted above, it is our experience that a product that touts endless hot water leads to the use of more water, because there is nothing that stops a user like a tank type product when it runs out of hot water. This is supported in the "Water Heating Design Guide" by the comment that "Gas tankless water heaters do offer a different hot water delivery experience relative to storage water heaters. Increased hot water wait time, no hot water at very low flow rates, and "cold water sandwich" effects will occur." These items will attribute to more water being used.

BWC does not understand why an increase in water usage was not a larger part in this decision when proposing new building standards. This is surprising, because there are websites, such as www.waterboards.ca.gov that recommend everyone "keep showers under five minutes." Also, in the New York Times article "Saving Water in California" from July 9, 2014, it was requested that Californians cut their water usage "by just 5 percent, far short of the 20 percent reduction [that] Gov. Jerry Brown called for in January [2014]." The article goes onto state that, in some areas, the water use has actually increased.

If a tankless water heater is required by the new building standards, it would make sense that additional requirements would have to be put in place to reduce the amount of water used to offset the difference that would be seen with this type of water heater versus a tank type water

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heater. For example, this could include improved hot water distribution throughout a home; possibly having smaller, localized water heaters in a home; and improved pipe insulation on the hot water piping.

In the Notice of Proposed Action, we understand that jobs and/or businesses will not be eliminated due to the changes; however, the products being promoted are not manufactured in the U.S. So, while California jobs are not affected, U.S. jobs will be affected by promoting products manufactured overseas.

BWC understands that a Codes and Standards Enhancement Initiative (CASE) Report was prepared to help justify the changes proposed. After reading through the Addendum to this report that focuses on Residential Instantaneous Water Heaters, it was noted that the estimated useful life (EUL) of instantaneous water heaters is commonly stated as (20) years. BWC disagrees with this estimated number, and we would like to note that some of these sources are largely out of date and/or are based on marketing and advertising claims. This has been pointed out previously before by various different sources, especially through the DOE rulemaking process that is stated as "[being] vetted through a diligent public process that involved industry experts." And by using an inaccurate number, the Lifecycle Cost (LCC) analysis will wrongly sway things in favor of the misrepresented technology. This further reinforces the fact that the standards should be technology blind and focus solely on a required efficiency.

Bradford White Corporation thanks you for this opportunity to comment on the proposed building standards in the California Code of Regulations. We have coordinated our response with AHRI.

Respectfully Submitted,

Bradford White Corporation

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