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HHT comments to CEC Proposed Efficiency Standards 072919

Additional submitted attachment is included below.

Before the California Energy Commission

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Formal Comments from Hearth & Home Technologies
regarding CEC Analysis of Proposed Efficiency Standards
and Marking for Gas Hearth Products

July 29, 2019

Introduction

The Hearth & Home Technologies LLC (Hearth & Home Technologies or “HHT”) appreciates the opportunity to provide comment to the California Energy Commission (“CEC”) in response to the draft staff report: Analysis of Proposed Efficiency Standards and Marking for Gas Hearth Products docketed on May 13, 2019 (“the Proposal”).

Hearth & Home Technologies is headquartered in Lakeville, Minnesota and we are the market leader in the manufacture of gas, wood and pellet burning fireplaces, stoves and inserts. Our well-known brands include Heatilator®, Heat & Glo®, Majestic®, Monessen®, Quadra-Fire®, Harman®, Vermont Castings® and PelPro®. We employ over 1,200 member-owners and have manufacturing plants and distribution centers in Iowa, Minnesota, Pennsylvania, Vermont, North Carolina, California and Maryland.

Comments

I. Chapter 3: Product Description

In reviewing the RECS data as stated, staff has overestimated the percentage (68%) of California homes with a fireplace in the Pacific Division. The 2009 RECS data broke CA out in the Pacific data and the percentage of fireplaces (wood and gas) for CA was approximately 54% of the Pacific Division total. The 2005 and 2015 RECS data did not break out CA from the data but would have to assume the percentage stayed fairly consistent based on fireplace totals from all three data sets. If 68% was used to determine gas usage and gas savings, then these values would be overstated.

Gas Fireplaces

HHT agrees with staff comments that consumers seek gas hearth products primarily for the aesthetics and the relaxing atmosphere they create, any space heating they provide is a secondary consideration. As stated in the Lawrence Berkeley National Laboratory (“LBNL”) survey of Hearth Products in U.S. Homes, 39% use the gas fireplace mostly for decorative purposes, 54% use it for heat and decorative and 8% only for heat.

Heating vs. Decorative

To reiterate previous comments, all gas hearth products are primarily decorative and operated for the aesthetic and relaxing atmosphere they create. While heater gas fireplaces will provide more secondary heat to a space (for consumers that want that feature) than a decorative gas fireplace, however, anytime fuel is burned heat will be produced.

Zero-Clearance Fireplaces

When referencing fireplaces, it is important to include “gas” as part of the description as building codes define fireplace (masonry) and factory-built fireplaces (UL 127) as wood burning.

Fireplace Efficiency

AFUE and FE are both annual efficiencies over an entire heating season. Both formulas utilize the same average number of heating degree-days and average number of non-heating season hours per year in the calculation of their final efficiency. Both efficiencies use ANSI/ASHRAE standard 103 (Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers) to determine efficiency. The FE efficiency changed the amount of time used in the cycling calculation as fireplaces do not cycle on and off at the same rate a furnace would, this helps better represent fireplace usage efficiency.

HHT disagrees that steady-state efficiency is not representative of real-world usage. As previously stated by staff, the purpose of gas fireplace is to replicate a wood fire. As such, wood fires do not cycle on and off. Typical usage of a gas fireplace is to leave it on while the room is occupied, most come with controls to reduce the input/output from the gas fireplace should the room temperature become too warm. The reason for this feature is because the consumer does not want the gas fireplace turning on and off while they are occupying the room. Steady-state efficiency does not ignore all energy losses as stated by staff, also, since the product is not cycling on and off there is less on and off cycle energy loss.

II. Chapter 4: Regulatory Approaches

Industry Standards

Staff excluded the test standard for one of the products it is proposing to regulate, ANSI Z21.97/CSA 2.41 Outdoor Decorative Gas Appliances.

III. Chapter 5: Alternative Approaches

Alternative 3: Incorporate CASE Team Proposal

The CASE Team proposal of a minimum fireplace efficiency of 75% for gas fireplace heaters is excessive and considerably higher than the federally regulated direct heating equipment that is designed solely for the purpose of heating and almost no aesthetic appeal. This proposal would severely limit the models available to consumers as only 3.4% of gas fireplace heaters meet this requirement.

Alternative 4: Incorporate NRCAN Proposal

Regardless of staff opinion/assumptions, gas fireplaces are used differently than utilitarian heaters, making conventional thought that higher efficiency will reduce consumption, emissions

and utility savings inaccurate. The vast majority of consumers want to have the fire operating when they are in the room the gas fireplace is, they don't want the appliance cycling on and off, they may turn it to a lower rate but don't turn it off. There is no data that a higher efficiency gas fireplace will provide greater energy savings leading to reduced onsite consumption, emissions and utility costs as this is only an assumption.

Alternative 5: Moderate Fireplace Efficiency Standard

The 70% minimum efficiency proposal for a gas fireplace heater is much more than a "moderate" efficiency increase over the NRCan proposal. As stated above, there is no data that increasing the minimum efficiency to 70% for gas fireplace heaters, as opposed to utilitarian products, will produce significant savings in consumption, emissions and utility costs, only assumptions. HHT does not believe there is data that concluded a 70% minimum efficiency would create energy savings. It would be more accurate to say that the 70% efficiency requirement was based more on hitting a 25% compliance rate for gas fireplace heaters with the assumption that this would provide consumers with a reasonable number of choices.

IV. Chapter 6: Proposed Standards for Gas Hearth Products

The proposed implementation date for gas hearth products manufactured on or after January 1, 2021, or one year from the adoption date is too aggressive. With a proposed compliance rate for gas fireplace heaters being only 25% of the total models available, one year of development time for manufacturers to redesign, recertify and go into production to create more compliant models is not realistic. The average development time to production can range from 9 months to 18 months depending on the complexity of the model(s) that make up the product family, with the number of models currently not compliant, one year is not sufficient. Even relabeling a product from Heater to Decorative will require retesting and certification that takes time and additional cost to the manufacturer and ultimately the consumer. Not to mention that there will likely be an issue with available certification lab time to meet a one-year deadline.

Test Procedure

The modifications that staff is recommending to CSA P.4.1 – 2015 are not needed to determine fireplace efficiency:

- 5.7 Pilot light measurement: If a model uses an ignition system that requires the measurement of the pilot input rate (Q_P), then it is measured the same way a continuous or on-demand pilot would to calculate the appropriate Q_P for the ignition system being used. With respect to interrupted ignition systems, they are considered the same for test standard purposes and certifying bodies would know how to assign the appropriate Q_P .
- 6.14.2 Effective flue gas temperature difference at start-up: This is an editorial mistake that CSA can fix during the next revision cycle. When entering data into the calculation spreadsheet for a direct vent there is no stack, only flue for direct vent fireplaces.

Marking Requirements

The history of the development of the standard for Vented Decorative Gas Appliances dates to 1963 when it was agreed by the vented gas fired warm air heaters technical subcommittee that there was a need for a standard for appliances which are primarily intended to be decorative

rather than sources of heat. The first standard of Z21.50 was approved in 1964. The history of the statement “vented decorative appliance: not a source of heat” has been in the standard for decades as a required statement in the manuals and on rating plates of these appliances.

The CEC and NRCan acknowledge that decorative gas fireplaces will generate heat, though not the primary purpose, by requiring manufacturers to test, list and publish an efficiency for a decorative product. The burning of fuel to create a flame replicating that of a solid fuel fireplace creates heat, that fact can’t be changed even if the primary purpose was for decorative purposes. In today’s era of lawsuits, it would be more appropriate to change the required language for the manual and rating plate in ANSI Z21.50/CSA 2.22 to better describe the intention and output of a decorative gas fireplace.

Our recommendation would be to continue to apply the current required language in the manual and rating plate until such a time that more appropriate language can be created and added to the test standard. Adding the current language to packaging and requiring it on the cover page of the manual provides no added clarification to the consumer that isn’t already in the manual.

V. Chapter 7: Technical Feasibility

HHT considers all their gas hearth products primarily decorative. The whole reason consumers are purchasing gas fireplaces are primarily for décor and ambience they bring to the home. In fact, NAHB’s consumer research showed that fireplaces are one of the top “must have and desired” decorative home products in a new home. Most of these products are installed in family/living/great rooms as focal and gathering points for the family, therefore, they must be decorative first and anything that takes away the aesthetics of the flame would impact sales. Heat output, when or if wanted by the consumer, becomes a 2nd, 3rd or 4th requirement in the decision-making process of the consumer.

While it is technically feasible to develop a 70% plus efficient gas fireplace, in many instances it isn’t necessarily what the consumer needs or wants. As previously stated, consumers want the relaxing ambience that a burning fire brings to a room when they are in it, as such, they do not want the gas fireplace turning on and off while they are in the room due to too much heat being supplied to the space. Also, these products are primarily attended products in that they are operated when someone is present in the room and primarily in the winter months (which for much of the populous areas of California are for the most part mild) of December, January and February.

Technology Options

HHT, in fact most of industry, have done research and development and even patented technologies on how to produce a better flame with less gas for years. Unfortunately, no one has developed anything that significantly reduces gas consumption that can still provide the aesthetic look and feel the consumer requires from this product category.

The CEC and DOE continue to try and fit this product category into the same line of thinking for a utilitarian heater which has only one primary function, provide heat. Gas fireplaces on the other hand are primarily decorative and are a focal point of a room and do not fit the same line of

thinking. While it is possible to make them more efficient, this is not what most consumers are asking for.

VI. Chapter 8: Savings and Cost Analysis

Incremental Costs

The CASE Team estimates for incremental average installed costs to the consumer for a heating gas fireplace are underestimated. To meet a 70% efficiency a gas fireplace heater will need to use ceramic glass which is 5 or 6 times more expensive than a piece of tempered glass. Add to that the need for additional baffling, insulation and/or fans, the cost to the consumer will be closer to \$200 to \$300.

Design Standard Savings

Design standard savings are based on no more continuous pilots once the proposal goes into effect, however, the calculations for intermittent pilot lights are overstated. When calculating the Pilot Operating Hours (POH) of an intermittent pilot, the logic in Equation 1 is incorrect thus resulting in incorrect operating hours in Table A-17.

First, the equation incorrectly adds the Main Burner Operating Hours (MBOH) to the POH. This is incorrect as the overall input rate of the fireplace includes the pilot light, therefore, the only operating time that can be used in the calculation is the time the pilot operates prior to the main burner turning on.

Second, the on-time per cycle of the fireplace (T_{Cycle}) is assumed to be 20 minutes. As previously discussed, consumers do not want their fireplace cycling on and off while they are in the room and no data was provided by Staff that supports this assumption.

Based on Staff burner operating hours assumptions for the different product types and the adjustments as noted above, the POH for these models should be:

- Heating fireplaces – 4.4 hours/years versus 363 hours claimed.
- Decorative fireplaces – 2.2 hours/year versus 180 hours claimed
- Gas Logs – 2.9 hours/year versus 241 hours claimed.
- Outdoor Fireplaces – 2.2 hours/year versus 180 hours claimed.

Efficiency Standard Savings

The efficiency savings in Table 8-6 are all based on assumptions by staff with no data available to substantiate reduced main burner operating hours of a 70% efficient heating fireplace.

Total Savings

Based on the fact that the POH savings are greatly overstated and there is no data to support that a 70% minimum efficiency for a heating gas fireplace will produce any annual savings, therefore, the estimated statewide savings are overstated.

VII. Chapter 10: Regulatory Language

§1602. Definitions

Propose to change the definition of “Fireplace efficiency (FE)” to be: means the annual fireplace efficiency rating of a decorative gas fireplace and a heating gas fireplace as determined in CSA P.4.1-2015.

§1607. Marking of Appliances

(d) Energy Performance Information.

(15) Vented Gas Hearth Products. Decorative gas fireplaces manufactured on or after January 1, 2021, shall be marked, permanently and legibly on an accessible and conspicuous place on the unit, on product market literature, and on the cover page of the instructions, “Vented decorative gas appliance: not a source of heat.”

As previously stated, adding “not a source of heat” on market literature and the front cover is disingenuous to the consumer since one of the products of burning fuel is heat, even if this product types primary purpose is decorative. Market literature has the FE information along with other product details to help inform the consumer on what the fireplace offers, therefore, we recommend that the current test standard requirements for the manual and fireplace remain the same until the CSA technical committees can develop a more appropriate statement.

VIII. Conclusion

Any regulation that impacts the aesthetic nature of a fireplace, decorative or heater, will negatively impact future sales of these products. These products are different from many other utilitarian products that are regulated for energy usage in that as they are the focal point of a room (as opposed to being out of sight in a utility room, garage or attic space) and products aesthetics and flame appearance during operation are a key item that consumers focus on.

While saving energy is a key initiative for HHT, setting a minimum 70% efficiency requirement for gas fireplace heaters will have minimal impact to energy savings.

Regards,



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Hearth & Home Technologies