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To Our Colleagues at ENERGY STAR:

On behalf of Therma-Stor and its subsequent dehumidification brands of Santa Fe, Ultra-Aire, Phoenix, and Quest, I would like to submit the enclosed comments on the draft proposal titled *Draft 1 Version 5.0 ENERGY STAR Dehumidifiers specification* for your consideration in developing the final program requirements.

As the Original Equipment Manufacturer (OEM) for 9 of the current top 10 ENERGY STAR Certified dehumidifiers (www.energystar.gov/productfinder/product/certified-dehumidifiers/results), Therma-Stor is a strong supporter of the ENERGY STAR program and the value it provides to consumers in the U.S. and abroad in the selection of the most energy efficient means to provide dehumidification to their homes. We see the ENERGY STAR program as a key differentiator for many manufacturers and is highly recognizable by consumers to select the best equipment for protecting their homes from IAQ issues and improving overall comfort. Therefore, we feel it is our duty to comment on *Draft 1 Version 5.0*. Therma-Stor understands the market need for differentiating Energy Star over DOE minimum standards and to keep the bar moving higher, but in Version 5's current form, many of the high efficiency models Therma-Stor and other competitors provide may fall out the ENERGY STAR certified category to be replaced by less efficient units, which we believe will be a loss to both consumers and the environment. In addition, loss of the ENERGY STAR certification could be a significant business interruption to our American manufacturing facility in Madison, WI.

At the core of many of our comments is the analysis performed to create the new rules. The EPA data and analysis excel file posted to the *Dehumidifiers Specification Version 5.0* webpage utilized current rated energy factor (EF) and current pints per day (PPD) to perform the analysis on which the program changes were analyzed, including paybacks and number of units estimated to meet ENERGY STAR Version 5.0. Therma-Stor believes this analysis was based on inadequate data, as was mentioned by the EPA during the August 30, 2018 webinar.

Our comments on *Draft 1 Version 5.0 ENERGY STAR Dehumidifiers specification* fall into three categories: The elimination of portable dehumidifiers greater than 50 pints per day (PPD) [2.B.], classification of whole-home dehumidifiers by case volume [3.A.Table 2], and the division between whole-home and portable dehumidifiers [1. A. a. and 1. A. b.].

Elimination of portable dehumidifiers >50PPD
[Draft 1, Version 5.0, 2. B.]

The elimination of >50PPD portables as part of the ENERGY STAR program is a disservice to consumers, particularly in the S.E. United States and similar global environments. It is our experience that there is demand for >50PPD portable dehumidifiers in residential settings, especially in sealed crawl spaces and attics where health concerns have pushed to improve indoor air quality in mixed-humid and hot-humid climates. These spaces often require dehumidifier capacity greater than 50PPD to maintain humidity during peak conditions.

By eliminating portables that have a capacity >50PPD from the ENERGY STAR program, it does not allow for differentiation with the ENERGY STAR logo which contractors and consumers alike desire. Greater than 50PPD portable dehumidifiers should be included in the Version 5.0 ENERGY STAR program as the demand will only grow with codes and markets driving moisture control in enclosed but unconditioned spaces.

It is Therma-Stor's opinion that the portable dehumidifiers >50PPD is a growing category and should receive an ENERGY STAR certification rating in Version 5.0.

Classification of whole-home dehumidifiers by case volume
[Draft 1, Version 5.0, 3. A.Table 2]

Therma-Stor experts examined the data provided in the file *ENERGY STAR Dehumidifiers Data and Analysis - August 2018* found on the ENERGY STAR Version 5.0 website. Therma-Stor, according to the EPA analysis, is the only manufacturer of the >8.0 ft^3 whole-home dehumidifiers that will be compliant with ENERGY STAR Version 5.0. However, our internal testing utilizing the new IEF and comparing to the ENERGY STAR Version 5.0 requirements show that the 6 units shown to pass in the EPA analysis will actually **fail** to meet the requirements of the new standard. If we are correct, there will be zero units in the >8.0 ft^3 whole-home dehumidifier category. This means that our Quest-Dry/Dual 105 unit and the other variations of this unit (Ultra-Aire XT 105H, Santa Fe Impact and the Trane 105) **will no longer be** ENERGY STAR certified. This product currently holds the top spot on the ENERGY STAR certified list.

Therma-Stor is confused and concerned why a large case volume category is necessary, especially without any units that qualify. Therma-Stor also questions the cost effectiveness of the new requirements in this category. Large case volume (>8.0 ft^3) whole-home units are required to be 46% higher than DOE standards, while the next closest category is only a 21% increase.

We feel strongly that the DOE and the Energy Star program should not be basing efficiency standards on physical size of units. To provide an example of the impact on the Energy Star program and the end user, we offer the following example of two of our units.

Unit	Capacity	Energy Factor	Cabinet Size	MSRP	Category	ENERGY STAR V 5.0?
Ultra-Aire™ 120H	120 PPD	2.9 L/kWh	4.5 ft^3	$1,788	<8.0 ft^3	Y
Ultra-Aire™ 120V	120 PPD	3.6 L/kWh	8.9 ft^3	$1,975	>8.0 ft^3	N

These two whole house dehumidifiers in our product line have the exact same capacity (i.e. 120 PPD) and are sold into the same markets, but one has a performance rating of 3.6 L/kWh EF while the other has a 2.9 L/kWh EF. Many consumers see the slight increase in price well worth the boost in efficiency, especially with ENERGY STAR certification, as it occurs under the current rules of Version 4.0.

Under the draft rules of Version 5.0, the 2.9 L/kWh EF would receive ENERGY STAR certification, whereas the more efficient 3.6 L/kWh unit would not because it falls into the >8.0 ft^3 category. While an informed consumer may be able to spot the energy efficiency benefit of the physically larger unit, the lack of ENERGY STAR certification may not bring the unit to their attention.

To compensate, Therma-Stor could move to new technologies that would reduce the size of the 3.6 L/kWh unit until it met the requirements of the <8.0 ft^3 category, but the cost increase to manufacture the new unit will price it out of most consumer's range.

In the end, breaking the whole-home category into two sizes hurts the consumer from a payback (higher manufacturing costs) and serviceability perspective. No other air handling equipment has scaled efficiency based upon physical size in the residential market, and we do not believe that dehumidifiers should be approached this way.

It is Therma-Stor's opinion that the Whole-home dehumidifier performance criteria should not be based upon the cabinet size. This approach will lead to consumers buying less efficient dehumidifiers, which is bad for the consumer and the environment.

Division between whole-home and portable dehumidifiers
[Draft 1, Version 5.0, 31. A. a. and 1. A. b.]

Therma-Stor believes that there should be a better distinction between whole-home and portable dehumidifiers or no distinction at all. The new DOE testing procedure makes a valiant effort representing more realistic conditions of where portable and whole-home dehumidifiers are used. However, the effort is based on the assumption that a ducted dehumidifier is used inside the conditioned space of a house and a portable is typically in a location that has high heat loss.

It is Therma-Stor's experience that ducted dehumidifiers are used in a variety of spaces including basements, attics, crawl spaces, and conditioned spaces. It is also our experience that ductless (portable) units are often used in all the same spaces. If the performance bar is set lower for portable units it will cause market confusion and cause a great disservice to the consumer as a portable dehumidifier that is

rated as ENERGY STAR will use more energy than that of many non-ENERGY STAR units rated under the whole-home rating system. These units will be compared by consumers who are unaware of the new changes to the ENERGY STAR program.

It is Therma-Stor's opinion that the distinction between portable and whole-home dehumidifiers should be eliminated as many consumers use the units interchangeably. Setting a high bar for both categories will decrease the energy consumption across the board, thus helping both consumers and the environment.

Conclusion

Therma-Stor urges the EPA to work with manufacturers to update their data and rerun the analysis found in *ENERGY STAR Dehumidifiers Data and Analysis - August 2018*. With better data, we believe a better analysis of the public benefit and market differentiation can be performed. Therma-Stor will gladly provide data and other assistance towards this endeavor.

Therma-Stor also urges the EPA to create a transparent program that eliminates confusion on use case (i.e. portable vs. whole-home) and cabinet size, so end users and program implementors (e.g. utilities, building programs, and governments) can make clear decisions based on the performance of the dehumidifiers (L/kWh).

Finally, Therma-Stor would ask the EPA to reconsider their stance on >50PPD units in the portable category, if the portable category is to be kept, as these units are being used more and more in unconditioned but enclosed spaces.

Sincerely,

Todd DeMonte

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President/CEO