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Ms. Abigail Daken
US EPA
ENERGY STAR
1200 Pennsylvania Ave NW
Washington, DC 20460

Re: ENERGY STAR Specification Framework for Central AC and air source HP's - Version 5.0

Ingersoll Rand Residential Solutions, manufacturer of Trane, American Standard, and Ameristar residential heating and air conditioning products, appreciates the opportunity to comment on the EPA's Specification Framework Version 5.0 for residential air conditioners and air source heat pumps. Currently, the burden of certification and enforcement for ENERGYSTAR listed products has reached a level which is causing us to question if the benefits of the ENERGYSTAR program for our products is worth the burden of being a part of the program. Adding complexity with more certified metrics, regional qualifying levels, and prescriptive design requirements as outlined in this framework will only increase that burden without significantly increasing the benefits. With the advent of higher minimum efficiencies regulated on a regional basis, we believe that it would be best to sunset all ENERGYSTAR performance metrics for residential HVAC.

Our comments to your specific questions are below.

Regional Specifications

The only way to get accurate information on the ratings of a split system residential HVAC system is from the AHRI Directory. All other methods using labels would be overly burdensome, inaccurate or both.

Should a manufacturer choose not to be a member of AHRI, then the Certifying Body should be required to be able to provide rating certificates.

Performance Metrics

We do not have first-hand information on how utilities analyze HVAC systems using available performance data.

In the process of carrying out the tests for HSPF we do capture data that would allow COP to be determined at the three outdoor operating points (47F, 35F, 17F).

For single speed equipment, no significant increase in HSPF can be achieved without increasing SEER. There are some control schemes that allow modulating units to run at higher compressor speeds in heating at lower outdoor temperatures which increases capacity and thus HSPF. This is generally limited to premium products.

Diagnostics

There are few diagnostics available on the market today that are focused on maintaining energy efficiency, and these are for the most part associated with filters. It is expected that 2-way communication and diagnostics will continue to evolve in HVAC systems in the future with the premium products being the vehicle for introduction. Accurately determining that charge level is low

or air flow is low, which would be good for maintaining performance, continues to be a challenge for manufacturers.

Ingersoll Rand's premium family of AC, HP, air handlers and furnaces can communicate and does automatically set airflow and alert for filter change. We have not found any studies that have identified the energy savings that might be achieved with homeowner alerts.

Generic models such as FDD from NIST have limitations which would lead to false alarms when used on unique designs. We create diagnostics specific for our equipment to allow service personnel to quickly and accurately diagnose problems with complex systems. This could not be done with generic models.

Quality Installation

It is very important that all HVAC systems are installed properly. Generally, the performance data (expanded data tables) and instructions supplied to our dealers are sufficient to do so. However, the availability on a public basis of expanded performance tables poses an interesting dilemma. These tables do provide accurate data on the performance of our systems over a range of conditions. However, because of the enforcement rules we have been forced to "derate" SEER, HSPF, and capacity on formal ratings. Thus, the performance tables and ratings will not always correlate. We do not want to "derate" these tables. This current state is not an issue for our dealers, however allowing the tables to go to the general public would generate confusion and is not a good idea.

We do not agree that adding ports in our indoor equipment is a good way for technicians to measure duct pressures. For accuracy, this should only be done in the ductwork. The location of the measurement points will vary from installation to installation. The referenced NCI document gives a rudimentary approach without regard to the numerous errors that poor measurement location/technique can create. It is particularly alarming that NCI would direct a technician to remove a safety device from a furnace in order to make a measurement.

ACCA 5 QI is a very good tool and should be followed on every installation. At this time, for retrofit installations it specifies that a measured external ESP is not required. Since the overwhelming majority of installations are retrofit, adding pressure ports will do little to help meet QI.

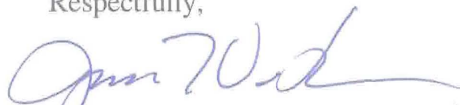
Blowers

We concur with the decision to not add additional requirements on blowers.

Test Methods

It would be best to reference the latest version of AHRI 210/240. Improvements to this standard are being introduced that will greatly improve the accuracy and repeatability of testing. Since the current standard's testing uncertainty is not appropriately addressed in the certification and verification rules, it would be best for all to be able to immediately adopt the improved testing methods. The CFR takes a long time to get updated to the most recent versions of standards, and the need to unburden participants is high.

Respectfully,



James T. VerShaw
Chief Engineer