

## **Comments of the Air Conditioning Contractors of America to the Version 5.0 Central Air Conditioner and Air-Source Heat Pump Specification Framework Document**

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The Air Conditioning Contractors of America (ACCA) appreciates the opportunity to submit these comments to the Central Air Conditioner and Air-Source Heat Pump Specification Framework document. ACCA is the leading organization representing the interests of the nation's best heating, ventilation, air conditioning, and refrigeration contracting companies and their technicians. ACCA takes an active role in writing and developing ANSI recognized standards related to HVAC equipment sizing and selection, installation, maintenance, and restoration. ACCA is also the leading HVAC Quality Installation Training and Oversight Organization (H-QUITO) for the ENERGY STAR for New Homes program.

The following comments are based on a limited survey of ACCA members from around the country.

The Framework document proposes several significant revisions to the current 4.1 Specification. Among them are potential changes to the labeling of central air conditioner products now subject to new regional standards; the addition of a new performance metric to, and possible regionalization of, the air-source heat pump specification; and new specification requirements to support quality installations.

The current ENERGY STAR Version 4.1 Specification requires split system central air conditioners (CAC) to be at least 14.5 SEER & 12 EER, and package system CACs to be at least 14 SEER and 11 EER; while split system air-source heat pumps (ASHP) must be at least 8.2 HSPF, 14.5 SEER, and 12 EER, and package system ASHPs must be at least 8.0 HSPF, 14 SEER, and 11 EER.

### **I. ENERGY STAR Labels for Central Air Conditioners**

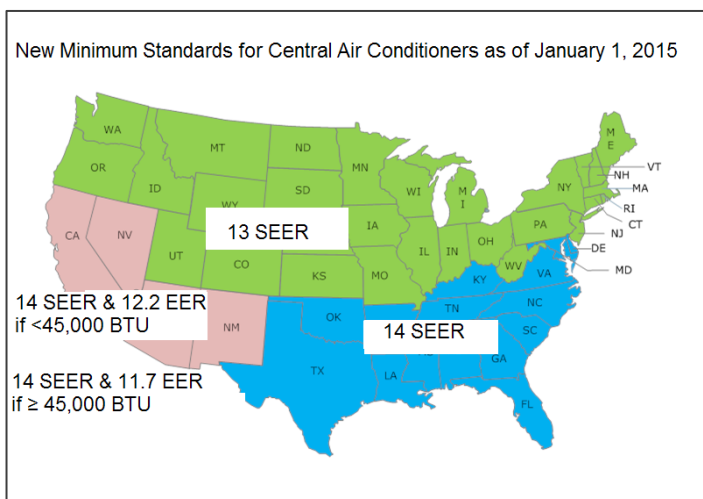
The EPA will need to revise the residential CAC & ASHP specifications in light of new Department of Energy (DOE) minimum energy conservation standards that go into effect January 1, 2015<sup>1</sup>. The new energy conservation standards for the four product categories of split and package type central air conditioners and air-source heat pumps are equal or nearly equal to the current Energy Star specification. Because of the variations within the regional minimum energy conservation standards for split system CACs that include multiple performance metrics and system size criteria for three regions, Energy Star has to carefully consider the complexity and legibility of labeling the equipment.

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<sup>1</sup> The new federal minimum energy conservation standards for split system central air conditioners are based on the region where the appliance is installed. The standards divide the states and territories into three distinct climate regions that follow state lines: Southwest (Arizona, California, New Mexico, Nevada); Southeastern (Alabama, Arkansas, Delaware, Florida, Georgia, Hawaii, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and the District of Columbia); and North (Alaska, Colorado, Connecticut, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, Puerto Rico, Rhode Island, South Dakota, US Territories, Utah, Vermont).

Ideally ENERGY STAR compliant products are labeled or certified by the manufactures but in this case it may be impractical given that manufacturers cannot control the final installation location and/or condenser-coil combination<sup>2</sup>.

While regionalizing the CAC & ASHP specifications would not be unprecedented, (ENERGY STAR recently created a [regional scheme for furnaces](#), setting a lower specification for furnaces installed in Southern states), there are as few as two and as many as four potential variations in the split system central air conditioner specifications based on the number of minimum efficiency standards and size variations that will be in place.



Product	Current DOE Minimum Standard	Current Energy Star Specification	DOE Standard on 1/1/15		
Central Air Conditioner			North	Southeastern	Southwest
Split System	13 SEER	14.5 SEER / 12 EER	13 SEER	14 SEER	if <45,000 BTU: 14 SEER & 12.2 EER if ≥ 45,000 BTU: 14 SEER & 11.7 EER
Package System	13 SEER	14 SEER / 11 EER	14 SEER	14 SEER	14 SEER & 11 EER (no size criteria)
Air-Source Heat Pump					
Split System	7.7 HSPF / 13 SEER	8.2 HSPF / 14.5 SEER / 12 EER	8.2 HSPF / 14 SEER (all regions)		
Package System	7.7 HSPF / 13 SEER	8.0 HSPF / 14 SEER / 11 EER	8.0 HSPF / 14 SEER (all regions)		

In order to simplify this scheme the best plan would be to use the same two region map used for the ENERGY STAR furnace regions that combines the Southeast and Southwest regions. Following this model, there would only need to be two specifications and two labels: one that says this product meets the specifications for the North region and one that says this product meets the specification nationwide.

This would also obviate the need to require the logo to be displayed on the products certification certificate.

To answer question #2 posed in the Framework document, ACCA contractors are unaware of options other than the AHRI directory certificate as proof of performance for utility or rebate programs.

## II. ENERGY STAR Labels and Performance Metric Specifications for Air-Source Heat Pumps

There are no DOE regional standards for residential split system and package type ASHPs, just a single national standard that will be applied in all states. However it appears that Energy Star is considering a scheme that would regionalize the ENERGY STAR ASHP specifications relying on the Coefficient of Performance metric. Energy Star is considering Coefficient of Performance (COP) at 35°F or 17°F and capacity derating at 17°F as a metric for northern regions.

<sup>2</sup> Manufacturers affix the ENERGY STAR label to the condensing unit only, based on the assumption that it will be matched with the most commonly sold condenser-evaporator combination.

Based on our survey responses, ACCA members are not aware of any utilities that look at the COP metric. In addition, comments suggested that adding the COP metric and regionalizing the specification for ASHPs would not improve the sales of Energy Star qualified ASHPs in the North.

### **III. Specifications related to System Status and Diagnostics**

Energy Star sought comments on a new specification requirement for CAC & ASHP systems to have auto-diagnostic tools. While many systems sold and installed today can alert the homeowner or technician about system problems, Energy Star does not currently require them in the specification. Of particular interest is information related to refrigerant charge, low air flow, or the need for a filter change.

Based on the responses to our survey, these technologies are found only on the top tier, higher end systems. They are prevalent on the most expensive 10-15% of models installed, which are also the most efficient models. However, the energy use is significantly greater than the ENERGY STAR specification. In response to our survey, improper refrigerant charge and low air flow are the two pieces of information most important to the contractor.

However, it was generally agreed that better diagnostic tools and system alerts may help avoid a poor installation, optimize any service calls, and initiate a technician response before a problem can worsen.

### **IV. Assuring Superior Design and Quality Installation**

EPA is looking at requiring manufacturers to make available the Expanded Performance Data to encourage the optimization of the design and selection of the air conditioner or heat pump system.

While this may promote best practices or compliance with the ANSI / ACCA 5 QI – 2010, *HVAC Quality Installation Specification* standard, requiring the Expanded Performance Data may not result in it being used. Not all contractors can find this information, but even if they did, it's not always the case that they would use it. Some form of quality assurance would be necessary to ensure the system was designed and installed properly.

EPA is also looking at requiring manufacturers to provide punch out or measurement ports in the appliances' exterior cabinets so that installers can quickly and easily measure air flow and or static pressure at several points in the air path. Of note, measuring air flow and static pressure is required under the ANSI / ACCA 5 QI – 2010, *HVAC Quality Installation Specification*.

Based on the survey responses, if equipment had pre-drilled ports in the cabinets at standard locations, it would be easier for technicians to take air flow measurements in compliance with the QI standard.

### **V. Alternatives**

ACCA is aware that other stakeholder comments suggest a move toward an installation based specification and away from performance specifications. Should Energy Star choose to go in this direction, ACCA believes a viable solution is at hand.

As previously noted in these comments, ACCA's QA New Homes program accredits residential HVAC contractors for the ENERGY STAR 3.0 New Homes program. ACCA's QA New Homes was developed as a rigorous program; it verifies an applicant's licenses, registrations, insurances, and certifications, and is the only program that conducts random compliance visits and terminates contractors that fail to live up to our standards. Builders and regulators are assured that participants in the QA New Homes program are the contractors committed to an actual quality installation.

Recently, ACCA launched the QA Residential Service & Installation (RSI) contractor accreditation program. This program is intended specifically for contractors who wish to show their customers in the residential replacement marketplace that they follow the industry standard for quality HVAC installation.

The new RSI program, building upon the same platform used for the New Homes program, requires participating, accredited contractors to meet or exceed program requirements for those homes seeking program recognition and which are subject to verification.

The RSI program aims to bolster market transformation initiatives for residential HVAC system installations in four ways:

1. Promote the installation of HVAC systems to the nationally-recognized industry standard, ANSI/ACCA 5 QI 2010 (*HVAC Quality Installation Specification*).
2. Accrediting contractors that meet the QA Contractor Elements, which demonstrates that the contractors is capable of achieving the requirements contained within the QI Standard.
3. Verifying, via objective third parties, that the accredited contractor has performed the HVAC installation in accordance with the standard requirements.
4. Issuing a certificate for HVAC equipment installed in accordance with program requirements.

Should EPA choose to move to an installation based specification, ACCA has in place the contractors and the technical tools, education and training, and QA network necessary to ensure equipment is installed properly and performing as rated. Specifications related to the behavior and installation of the equipment after it has left the factory are difficult to attest without a robust quality assurance program.