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Air-Conditioning, Heating, and Refrigeration Institute

February 11, 2008

California Energy Commission
Attention: Harinder Singh
Buildings and Appliances Office, MS-25
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket No. 07-AAER-3 - 2008 Rulemaking Proceeding on Appliance Efficiency Regulations

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) submits these written comments on the California Energy Resources Conservation and Development Commission (CEC) proposed amendments to the appliance efficiency regulations Title 20, Docket No. 07-AAER-3

AHRI is the trade association representing manufacturers of heating, cooling, and commercial refrigeration equipment. More than 350 members strong, AHRI is an internationally recognized advocate for the industry, and develops standards for and certifies the performance of many of the products manufactured by our members. In North America, the HVACR industry produces more than $20 billion worth of product, and in the United States alone, our members employ approximately 130,000 people, and support some 800,000 dealers and contractors.

Heat Pump Pool Heaters

AHRI would like to propose changes to the requirements for heat pump pool heaters specified in sections 1604(g) (Table G), 1605.3(g)(3) and 1606 (Table V).

Section 1604(g) Table G

When the California Energy Commission (CEC) first established energy efficiency requirements for heat pump pool heaters, the minimum coefficient of performance (COP) was based on the test methods and rating conditions contained in ASHRAE 146-1999 as modified by an addendum to the test procedure published by the Pool Heat Pump Manufacturers Association. Since then, the Pool Heat Pump Manufacturers Association ceased to exist and many of its members joined the Air-Conditioning, Heating, and Refrigeration Institute (AHRI).

Through AHRI, pool heat pump manufacturers developed ARI standard 1160 *"Performance Rating of Heat Pump Pool Heaters*", which establishes testing and rating requirements for heat pump pool heaters. The standard makes reference to ASHRAE 146 for the test methods and provides standard rating conditions at a high (80^{o}F) and low (50^{o}F) outdoor temperatures (the entering water temperature being at 80^{o}F). In addition, AHRI has launched a third-party certification program to independently verify

the performance ratings (heating capacity and coefficient of performance) of heat pump pool heaters claimed by manufacturers based on ARI 1160.

The proposed changes to Table G below establish ARI 1160 as the test procedure for heat pump pool heaters. In addition, the term "standard" has been replaced by "high" and slight changes were made to the rating temperature conditions to be consistent with the ARI standard. Finally, the Spa conditions were deleted as they are not part of the ARI standard and products are not tested at these rating conditions.

Table G
Pool Heater Test Methods

Appliance		***Test Method***	
Gas-fired and oil-fired pool heaters		ANSI Z21.56-1998	
Electric resistance pool heaters		ANSI/ASHRAE 146-1998	
Heat pump pool heaters		~~ANSI/ASHRAE 146-1998, as modified by Addendum Test Procedure published by Pool Heat Pump Manufacturers Association dated April, 1999, Rev 4: Feb. 28, 2000:~~ ARI 1160-2008	
Reading	***~~Standard~~ High-Temperature Rating***	***Low-Temperature Rating***	***~~Spa Conditions Rating~~***
Air Temperature Dry-bulb Wet-bulb	27.0° C (80.6° F) ~~21.7°~~ 21.5° C (~~71.0°~~ 70.7° F)	10.0° C (50.0° F) ~~6.9°~~ 6.78°C (~~44.4°~~ 44.2° F)	~~27.0° C (80.6° F)~~ ~~21.7° C (71.0° F)~~
Relative Humidity	~~63~~ 62%	63%	~~63%~~
~~Pool~~ Entering Water Temperature	26.7° C (80.0° F)	26.7° C (80.0° F)	~~26.7° C (80.0° F)~~

Section 1605.3(g)(3)

The current appliance efficiency regulations require that heat pump pool heaters meet a minimum coefficient of performance (COP) of 3.5 based on the average of the high and low temperature COP. AHRI would like to propose that a minimum COP of 4 be met at the low temperature condition. This proposed change significantly increases the stringency of the standard as heat pump pool heaters will now be required to deliver a higher COP at a higher temperature lift. The proposed requirements have been in place for over a year in the state of Florida, which has the largest heat pump pool heater (http://www.dca.state.fl.us/fbc/thecode/supp_051006icc_corrected0806_eff.pdf) market

in the country. The ASHRAE 90.1 committee approved the same requirements at its meeting in New York City in January 2008. The proposed changes to section 1605.3(g)(3) are as follows:

Energy Efficiency Standard for Heat Pump Pool Heaters. For heat pump pool heaters~~, manufactured on or after March 1, 2003~~, ~~the average of~~ the coefficient of performance (COP) ~~at Standard Temperature Rating and the coefficient of performance (COP)~~ at the Low Temperature Rating condition shall be not less than ~~3.5~~ 4.0.

Section 1606
In order to be consistent with the proposed changes to Sections 1604(g) (Table G) and 1605.3(g)(3), Table V in Section 1606 must be amended as follows:

Table V
Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
	Heat Pump Pool Heaters	Heating Capacity at ~~Standard~~ High Temperature Rating	
		Readily-Accessible On-Off Switch	Yes, no
		Coefficient of Performance at ~~Standard~~ High Temperature Rating	
		Heating Capacity at Low Temperature Rating	
		Coefficient of Performance at Low Temperature Rating	
		~~Heating Capacity at Spa Conditions Rating~~	
		~~Coefficient of Performance at Spa Conditions Rating~~	
		Refrigerant Type[1, 2]	Ozone-depleting, non-ozone-depleting

Single Package Vertical Units

AHRI proposes amendments to the Appliance Efficiency Regulations Title 20 to establish a new product class for single package vertical units (SPVUs). These products are commonly referred to as self-contained, through-the-wall or wall mounted packaged heating and/or cooling system having their major components arranged vertically. They may contain separate indoor grilles(s), outdoor louvers, various ventilation options, indoor free air discharge, ductwork, wall plenum or sleeve. SPVUs are intended for the commercial market and are used primarily in schools, telecommunication shelters, modular building markets, and other commercial markets.

In 2004, ASHRAE 90.1 established a product class for SPVUs with minimum energy efficiency standards in terms of energy efficiency ratio (EER) for air conditioners and

coefficient of performance (COP) for the heating performance of heat pumps. The test procedure referenced in ASHRAE 90.1 is ANSI/ARI-390-2003 "Performance Rating of Single Package Vertical Air Conditioners and Heat Pumps". Around the same time, AHRI launched a third party certification program to independently verify the performance of SPVUs.

Following ASHRAE 90.1, the California Energy Commission (CEC) established a new product class for SPVUs in the soon-to-be-approved 2008 version of Title 24, with minimum energy efficiency requirements identical to ASHRAE 90.1. Finally, in December 2007, the U.S. Congress enacted an energy legislation establishing among other things a product class for SPVUs with federal minimum energy efficiency standards based on ASHRAE 90.1.

Consequently, AHRI recommends that CEC align Title 20 with ASHRAE 90.1, the federal energy legislation and its own Title 24 by establishing a new product class for SPVUs, More specifically, AHRI proposes the following changes:

Section 1602 (c)
Add under the definitions for air conditioners the following:

"Single Package Vertical Air-Conditioner (SPVAC)" means a type of air-cooled small or large commercial package air conditioning and heating equipment; factory assembled as a single package having its major components arranged vertically, which is an encased combination of cooling and optional heating components. This equipment is intended for exterior mounting on, adjacent interior to, or through, an outside wall; and is powered by single or three phase current. It may contain separate indoor grille(s), outdoor louvers, various ventilation options, indoor free air discharge, ductwork, wall plenum or sleeve. Heating components may include electrical resistance, steam, hot water, gas or no heat, but may not include reverse cycle refrigeration as a heating means.

"Single Package Vertical Heat Pump (SPVHP)" means an SPVAC that utilizes reverse cycle refrigeration as its primary heat source, with secondary supplemental heating by means of electrical resistance, steam, hot water or gas.

Section 1604
Add in Table C-1 the following:

Table C-1
Central Air Conditioner Test Methods

Appliance	***Test Method***
Single package vertical air conditioners and heat pumps	ANSI/ARI 390-2003

Remainder of table unchanged

Add at the end of section 1604 under "Air-Conditioning and Refrigeration Institute"

ANSI/ARI 390-2003	Performance Rating of Single Package Vertical Air Conditioners and Heat Pumps

Section 1605.1(c)
Add in Table C-3 the following:

Table C-3
Standards for Air-Cooled Air Conditioners and Air-Source Heat Pumps Subject to EPAct

Appliance	***Cooling Capacity (Btu/hr)***	***System Type***	***Minimum Efficiency***
Single package vertical air conditioners and heat pumps (cooling mode)	< 65,000	All	9.0 EER
	≥ 65,000 and < 135,000	All	8.9 EER
	≥ 135,000 and < 240,000	All	8.6 EER
Single package vertical heat pumps (heating mode)	< 65,000	All	3.0 COP at 47° F db
	≥ 65,000 and < 135,000	All	3.0 COP at 47° F db
	≥ 135,000 and < 240,000	All	2.9 COP at 47° F db

Remainder of table unchanged

Section 1606
Although not specifically stated in the Appliance Regulations, CEC staff is requiring third party certifiers like AHRI to fill and submit forms to the CEC each time we submit data to the Commission. In most cases, the forms have no new information and are carbon copies of what was already provided to the CEC. This process is burdensome and adds little or no value. Instead, we would like to recommend that CEC streamline the process by requesting the third-party certifier to submit the form only once and to request that additional forms be submitted only if new participants have joined the certification programs since the time the original submission was made. Similarly, the "manufacturer" form should be submitted only once and not every time AHRI submits data to the CEC (several times a year). Finally, there seems to be an inconsistency between section 1606(g)(1) of the regulation, which authorizes trade associations to

submit an electronic or a paper copy of their directories, and the “trade association” form that requires only paper directories. We believe that the form has to be updated to be consistent with section 1606(g)(1). We would like to also recommend that CEC adopt an automated process for the data reporting requirements that would allow CEC to collect the AHRI data (at any time) from an FTP access point provided by AHRI.

We appreciate the opportunity to submit these comments. If you have any questions regarding this submission, please feel free to contact me.

Sincerely,

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