

**INTERPRETATION IC 90.1-2007-02 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-2007
Energy Standard for Buildings Except Low-Rise Residential Buildings**

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Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-2007, Section 11.3.2, regarding HVAC system type and related performance parameters for the budget building design.

Background: Section 11.3.2 of 90.1-2007 states that, for compliance with Chapter 11 of the standard,

"The *HVAC system* type and related performance parameters for the *budget building design* shall be determined from Figure 11.3.2, the system descriptions in Table 11.3.2A and accompanying notes, and the following rules:

a. Components and parameters not listed in Figure 11.3.2 and Table 11.3.2A or otherwise specifically addressed in this subsection shall be identical to those in the *proposed building design*.

Exception: Where there are specific requirements in Sections 6.4 and 6.5, the component *efficiency* in the *budget building design* shall be adjusted to the lowest *efficiency* level allowed by the requirement for that component type.

b. All HVAC and service water heating equipment in the *budget building* shall be modeled at the minimum *efficiency* levels, both part load and full load, in accordance with Sections 6.4 and 7.4."

Items 11.3.2c through 11.3.2j are not included in this request.

Thus, the Florida Building Code-referenced computer program EnergyGauge Summit Fla/Com-2008, which is based on Chapter 11, the Energy Cost Budget Method, originally compared single packaged vertical air conditioners and heat pumps (SPVAC and SPVHP) to System 9 on Table 11.3.2A with logic as follows: The equipment is air cooled, single zone non-residential systems, for both electric resistance heat and heat pumps. System 9 is a packaged rooftop heat pump, constant volume, direct expansion, electric heat system. The minimum a/c efficiency for a packaged rooftop heat pump <65,000 Btu/h per Section 6.4.1.1, Tables 6.8.1A and 6.8.1B, is SEER 13.

Florida needs this section of the standard clarified for inclusion in our next code change. At issue is the exception to Section 11.3.2a. Does the exception change the type of system used for the energy budget building or make the energy budget building system type the same as the proposed building if the mechanical system chosen is listed in Section 6.4 and 6.5? In effect the standard appears to be comparing the efficiency of one type of equipment to the prescriptive minimum for a system type that is more efficient than the accepted and approved minimum levels listed in Section 6.4 and 6.5 (the minimum efficiency for SPVAC & SPVHP is 8.6 EER).

If SPVAC and SPVHP equipment is considered air cooled, single zone non-residential systems with electric resistance and heat pump functions, such equipment would not fall under section 11.3.2 a, components and parameters not listed in Figure 11.3.2 and Table 11.3.2A, and the exception comparing them to the minimum efficiency for their type of equipment would not apply.

Interpretation No.1: Section 11.3.2 compares single packaged vertical air conditioners and heat pumps to the minimum efficiency for System 9, packaged rooftop heat pumps.

Question No.1: Is this interpretation correct?

Answer No.1: Yes

Comments: As currently written this is the correct interpretation of Section 11. However as a committee we are discussing this issue to determine whether any changes are required.

Interpretation No.2: The exception in Section 11.3.2a of the standard applies to single packaged vertical air conditioners and heat pumps.

Question No.2: Is this interpretation correct?

Answer No.2: No

Comments: The exception to 11.3.2.a would not apply because Figure 11.3.2 and Table 11.3.2.A specifically list the baseline system types that are to be used for the HVAC baseline.