

**INTERPRETATION IC 90.1-2007-11 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-2007
Energy Standard for Buildings Except Low-Rise Residential Buildings**

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Request from: Kevin Kresser (krk@rwsullivan.com), R.W. Sullivan Engineering, 529 Main St, Suite 203, Boston, MA 02129-1107.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-2007, Table G3.1.1A, regarding Baseline HVAC System Types.

Background: The project that brought about this interpretation request is a hotel which is proposed to have all electric packaged terminal heat pumps (PTHP's) serving 80,000 square feet of guest rooms, and a gas-fired/DX roof-top unit serving 18,000 square feet of common corridors. The third note in Table G3.1.1A states: "Where attributes make a building eligible for more than one *baseline* system type, use the predominant condition to determine the system type for the entire building." Therefore, in our case the predominant system is System-2, PTHP (all electric). However, the ASHRAE 90.1-2007 User's Manual referring to this section states that if any gas heating equipment is used in the building we have to model against a gas-fired heating system, which in this case would be System-1, (PTAC w/DX cooling and hot water/gas heating). Choosing that system type would not give a practical baseline comparison for this type of building and appears in conflict with the note. A roof-top unit with electric heat could be used for the proposed building which would then define the building as truly all electric. This all electric strategy would yield greater performance against the baseline but would actually increase operating costs and carbon emissions due to the energy source. This seems to go against the intent of the 90.1 standard. In our experience, the language of a standard always takes precedence over the commentary for that standard.

Interpretation: The third note in Table G3.1.1A states that when a building is eligible for more than one baseline system type, the predominant condition shall be used to determine the system type for the entire baseline building. Our interpretation of this note is that since 80% of the proposed building is served by electric PTHP's, then the system type for the entire baseline building should be System 2 - PTHP.

Question: Is this interpretation correct?

Answer: Yes

Comments: Section G3.1.1 provides the guidance for baseline system type and none of the exceptions apply for this building.

The conflicting statement in the ASHRAE 90.1-2007 User's Manual is on page G-22, and cited in the above Background by the requester. This User's Manual statement should be modified to align with Standard with regard to exception note G3.1.1.a, as well as the third note below Table G.3.1.1A both of which direct the baseline back to System 2 - PTHP.