

**INTERPRETATION IC 90.1-2010-26 OF
ANSI/ASHRAE/IES STANDARD 90.1-2010
Energy Standard for Buildings Except Low-Rise Residential Buildings**

Date Approved: January 24, 2016

Note: This is a revised response to interpretation IC 90.1-2010-26. Previous response was approved October 22, 2015.

Request from: Eoghan Hayes, IONS ENGINEERING LTD, Unit 105, 2233 West 2nd Avenue, Vancouver, BC V6K1H8.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IES Standard 90.1-2010, Section G3.1.1 and Table G3.1.1.A, regarding baseline HVAC system type and description.

Background: I am completing a LEED energy model for a high-rise residential building that contains a central gas fired make up air unit that provides ventilation to corridors and suites via door undercuts. Space heating for the proposed design consists of electrical baseboards with wall thermostats in each residential suite. The make-up air unit gas fired heater battery load may end up being greater than or equal to the sum of the electrical baseboard loads in all of the apartments units.

Interpretation: Based on Table G3.1.1A- Baseline HVAC Systems, it is the interpretation of this engineer that the baseline HVAC system for the individual residential suits should be system type 2- PTHP (Packaged Terminal Heat Pump) as the main space heating source will be electrical. The baseline system- PTHP will provide ventilation to each suite also and a separate PTHP will serve corridor areas but with heating only as the proposed building does not contain cooling in the corridor areas. Corridor and other areas add up to less than 20,000 ft², therefore only one system type is required as per exception a under Section G3.1.1. If the corridor and other areas added up to > 20,000 ft² system type 1 (PTAC) - heating only would be used for corridors and common areas, and system type 2 would be used for residential suites.

Question: Is this interpretation correct?

Answer: No

Comments: Since both electric and gas heat are serving the residential suites, one handling the space heating load and one handling the ventilation heating load, it is considered a hybrid system and therefore System 1 PTAC should be used as the baseline system for the residential zones.

For system selection within Appendix G, corridors and common areas are considered nonresidential spaces. If the nonresidential spaces (i.e., corridor and common areas) add up to less than or equal to 20,000 ft², they shall be served by System 1 PTAC.

If the nonresidential spaces add up to greater than 20,000 ft², they shall be served by the appropriate nonresidential system type from Table G3.1.1A. Related interpretations are available for ASHRAE 90.1-2007 which in this case are applicable (Refer to interpretations #11 and #29 ASHRAE 90.1-2007).