

**INTERPRETATION IC 90.1-2007-22 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, Appendix G, regarding building envelope values for the baseline case.

Background: Our firm has developed an energy model for a project in accordance with ASHRAE/IES Standard 90.1-2007, Appendix G. The project is a warehouse building located in Climate Zone 4. The warehouse space has a heating system (gas direct fired, non-recirculating heaters) but does not have any mechanical cooling. Because the warehouse space is not regularly occupied, the heating system was designed for freeze protection only, and not space comfort.

Our calculations have shown that, for the project's climate zone, the design of the proposed (actual) heating systems have a heating output less than the Heated Space Criteria shown in Table 3.1. As a result, we used the values in the semi-heated envelope option from Table 5.5-4 for the Baseline Case in our energy model.

The Authority Having Jurisdiction (AHJ) for this project has questioned the use of the semi-heated space classification for building envelope values in the baseline case. The AHJ has stated the following:

"The qualification of being a semi-heated space would have to be based on the *baseline building*. A baseline building with characteristics from Table 5.5-4 for a semi-heated space would require a nominal output capacity (with no factor of safety) of at least 16.2 BTUH/sq ft. With the ASHRAE 90.1 mandated increase in the heating equipment capacity of 25% (reference G3.1.2.2 Equipment Capacities) the basic warehouse heating system output capacity would need to be 20.2 BTUH/sq ft. Since the baseline building would not qualify as a semi-heated space, it is then required to be designed to the non-residential envelope criteria."

Is the AHJ correct that the size of the heating system for the Baseline Case is used to determine the semi-heated space classification instead of the Proposed (actual) Case? If so, should the 25% oversizing factor from G3.1.2.2 be included in that sizing methodology? Page 5-8 of the 90.1-2007 Users Manual states "Declaring a space as semi-heated or unconditioned is an exception that must be approved by the building official, although the Standard has very specific criteria for making the determination."

Interpretation: The capacity of the actual proposed design should be used to determine the classification between semi-heated and conditioned spaces and can be utilized for the baseline facility.

Question: Is this interpretation correct?

Answer: No.

Comments: The definition of *space* in Section 3, which includes *heated space* and *semiheated space*, provides heating system capacity criteria for the purpose of determining *baseline building design* envelope performance requirements. If the *baseline building design* heating system capacity, as determined by the sizing run and the oversizing ratio outlined in Section G3.1.2.2, is greater than or equal

to 3.4 Btu/h·ft² and less than the value for the respective climate zone in Table 3.1, the space is classified as a *semiheated space*, and the *baseline building design* envelope performance requirements shall be determined from the *semiheated* space classification in Tables 5.5-1 through 5.5-8. If the *baseline building design* heating system capacity is greater than or equal to the value for the respective climate zone in Table 3.1, the *baseline building design* envelope performance requirements shall be determined from the *nonresidential* or *residential* occupancy classifications in Tables 5.5-1 through 5.5-8.