

**INTERPRETATION IC 90.1-2007-05 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, Sections G3.1.1 and Tables G3.1 and G3.1.1.A, regarding how to apply Exceptions a, b, c, and d in determining Baseline System for large warehouses.

**Background:** This interpretation covers the interaction of separate portions of Appendix G as they relate to large warehouse facilities. For large warehouse buildings (floor area greater than 150,000 SF) that do not qualify as semi-heated spaces, Table G3.1.1A requires either System 7 or System 8 (depending on heating source) be used as the baseline HVAC system. In warehouses of this size there are also offices for functional aspects of storing and distributing products, such as order processing, call center operations, and staff management. In many cases, the warehouse portion of the building is occupied for over 80 hours each week while the office is only occupied for 40 hours each week. Table G3.1(7) requires that the HVAC zones for the baseline model be the same as the proposed model. The warehouse is typically designed with multiple single-zone constant volume heating/ventilating systems that serve quadrants or sections of the large, open storage area. It appears that Exception b to G3.1.1 applies to this situation; however, does the exception apply to the office portion of the building or to the warehouse portion of the building? In addition, must the project first confirm exception a before using exception b?

**Interpretation No.1:** Exception b applies to the warehouse portion of the space, allowing the use of System 3 or 4 as the baseline system for the warehouse as the space is utilized primarily for material storage and the entire building size is predominantly determined by size and quantity of product to be stored.

**Question No.1:** Is this interpretation correct?

**Answer No.1:** No.

**Comments:** Exception b to G3.1.1 only applies to the lesser portion(s) of the building. For example, if a building is comprised of 25,000 ft<sup>2</sup> of office areas and 155,000 ft<sup>2</sup> of warehouse, then the office area would be eligible for Exception b to G3.1.1.

**Interpretation No.2:** Exception a is determined independent of the other exceptions in G3.1.1.

**Question No.2:** Is this interpretation correct?

**Answer No.2:** No.

**Comments:**

Exception a to G3.1.1 should be utilized first to determine if multiple baseline HVAC system types from Table G3.1.1A are appropriate. However, exception a to G3.1.1 only applies if the separate area is greater than 20,000 ft<sup>2</sup> and that area must qualify for a different baseline HVAC system type based on a different building type, heating source, number of floors, or residential vs non-residential classification.

For example, if the office area and the warehouse area of a building are both greater than 20,000 ft<sup>2</sup> and the office uses electric heat while the warehouse uses gas heat, then two separate baseline systems types could be utilized.

If exception b to G3.1.1 applies to portions of the areas served by one of the baseline HVAC systems, then separate single-zone systems conforming with the requirements of System 3 or System 4 (depending on building heating source) can be utilized.