INTERPRETATION IC 90.1-2004-7 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-2004
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 90.1-2004, Table 3.1 and Sections 3.2 and 5.4.3.4, regarding vestibules.

Background: Section 5.4.3.4 requires an enclosed vestibule to protect a door that separates conditioned spaces from the exterior, with noted exceptions. Section 3.2 defines "conditioned space" as "a cooled space, heated space, or indirectly conditioned space…". On the same page, a "heated space" is defined as "an enclosed space within a building that is heated by a heating system whose output capacity relative to the floor area is greater than or equal to the criteria in Table 3.1".

It is common practice to heat vestibules to around 50˚F to further limit the affect of opening doors on the interior environment. However, heat added to the vesibule to maintain this temperature can often be in excess of the heating output limit of Table 3.1, therefore appearing to place the vestibule in the "heated space" and "conditioned space" categories.

Example: Vestibule required for building in climate zone 5A and outdoor winter design temperature of 0˚F. Vestibule has 100 sq.ft. floor area with 150 sq.ft. of glazing (U-value = 0.57). Accounting for heat loss through glazing only, the heating output required for the vestibule would be 150 x 0.57 x (50-0) = 4270 Btu/h, or 42.75 Btu/h-sf. This exceeds the 15 Btu/h-sf limit of Table 3.1.

In this example, if the vestibule would be considered a conditioned space, then per Section 5.4.3.4, the outer doors of the vestibule would also be required to be protected by another unconditioned vestibule.

In some buildings, cooling the vestibule may also be desired, and a similar conclusion to the above may also be drawn.

Interpretation: We find no restriction to heating or cooling vestibules in the Standard. We interpret the Standard as precluding vestibules from the typical space conditioning categories since doing so would result in doubling up on vestibules, i.e. one that is "conditioned" and one that is "unconditioned."

Question: Is this interpretation correct?

Answer: No. Exception (e) to 5.4.3.4 in the 2004 edition exempts this space from installing another vestibule because the space is less than 3000sf. However the exterior envelope of such conditioned vestibule needs to comply with the requirements for the exterior envelope.

Comment: In addition, this issue has been further addressed in Addendum "c" published in the Standard 90.1-2004 Addenda Supplement Package (published in 2006) available for free download from the ASHRAE website at http://www.ashrae.org/technology/page/132.