INTERPRETATION IC 90.1-2001-10 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-2001
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 90.1-2001, Section 6.2.3.3.4 and in the accompanying Table 6.2.3.3.4 "Maximum Damper Leakage".

Background: In the industry there are rectangular and round outside air dampers. Round dampers have OA flow measuring features and typically have a higher design velocity then rectangular dampers. Ball park, 2500 fpm round versus 1000 fpm rectangular. The higher velocity is needed to get an accurate flow reading. The 90.1 leak rate formula is based on square foot of damper. A smaller round damper is therefore required to have a much lower leak rate since the damper surface area is smaller.

Interpretation: The intent of the 90.1 standard was to limit total cfm leak rates. A round damper leak rate is acceptable if it's leak volume is equal or less then the rectangular damper leakage volume used in the same size air handler or rooftop.

Question: Is this interpretation correct?

Answer: No

Comment: While the intent of this section of the standard is to limit the total volume of air leakage through a damper, as currently written, the standard accomplishes this by specifying maximum leakage rates per unit of damper face area. This is the value that is published in AMCA Standard 500, which is the test standard mandated in 6.2.3.3.4 of ASHRAE Standard 90.1. This requirement does not distinguish between damper shapes. If round dampers are used, at higher face velocity than would be feasible with rectangular dampers, it is true that the absolute leakage rate permitted would be lower than for the rectangular dampers. However, the round dampers would be smaller, and thus even at a cost premium per unit area, may not increase absolute cost relative to rectangular dampers. Another important factor is enforcement. By specifying maximum leakage rates, that a particular damper's published leakage rating either meets, or does not meet, Standard 90.1 creates a specific requirement that a building official can easily check.