INTERPRETATION IC 90.1-2001-11 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 6.3.3.1 Fan Power Limitation, and Table 6.3.3.1, specifically relating to fan power limitation ratios.

Background: For HVAC systems having a *fan system power* exceeding 5 hp, Section 6.3.3.1a states, "The ratio of the fan system power to the supply fan airflow rate (main fan) of each HVAC system at design conditions shall not exceed the allowable fan system power shown in Table 6.3.3.1." Furthermore, Table 6.3.3.1 indicates maximum allowable nameplate motor horsepower based on either constant volume systems or variable air volume system at a low (<20,000 cfm) and high (>20,000 cfm) supply air flow rates.

These limitations are obtainable for standard office air handling units (AHUs), but are difficult or impossible to obtain for AHUs serving laboratories. Lab spaces require high airflow rates and high outside air percentages or even 100% outside air. Achieving the horsepower rating is still difficult even when the AHU serves adjacent office or administration spaces and does not serve 100% lab space.

High percentages of outside air required for labs result in static pressure requirements that exceed those required by AHUs serving office spaces due to:

- Increased cooling and dehumidification loads requiring greater heat transfer surface area at cooling coils.
- Increased heating loads requiring greater heat transfer surface at preheat coils.
- Potential of inclusion of heat recover coils at AHUs.
- Higher filter pressure drops due to higher levels of filtration as compared to an office.

Furthermore, the relief fan credit component calculation listed at the end of Section 6.3.3.1 is of no assistance in this matter due to the high percentage of outside air to makeup for the high exhaust airflows and hence very little or no return airflow.

Interpretation: Section 2.3c notes that the provisions of the standard do not apply to "equipment and portions of building systems that use energy primarily to provide for industrial, manufacturing, or commercial processes".

Our interpretation is that Section 6.3.3.1 and the fan power limitation ratios listed in Table 6.3.3.1 do not apply to laboratory AHU systems since they are "process" type applications and outside the intended scope of the Standard.

Question: Is this interpretation correct?

Answer: No

Comments: Section 6.3.3.1 Fan Power Limitation and fan power limitation in Table 6.3.3.1 applies to laboratories unless they serve industrial, manufacturing, or commercial processes. Additionally it is important to restate Section 2.5 which requires "This standard shall not be used to circumvent any safety, health, or environmental requirements."