

**INTERPRETATION IC 90.1-2001-13 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 and Table 6.3.3.1 Fan Power Limitation, specifically relating to the determination of laboratory exhaust air system fan power limitation.

Background: Section 6.3.3.1 clearly recognizes, in sub-section b., the special burden on systems that require "air treatment" or "heat recovery" or "other devices to serve process loads in the airstream". *Process load* is defined in Section 3.2 (page 10) of the standard as: "the load on a building resulting from the consumption or release of process energy." *Process energy*, in turn, is defined on the same page as: "energy consumed in support of a manufacturing, industrial, or commercial process other than conditioning spaces and maintaining comfort and amenities for the occupants of a building." Definitions of the words "manufacturing", "industrial", "commercial" and "amenities" are not provided in the standard.

Certain elements normally found in the design of a Laboratory Exhaust System consume energy, specifically fan energy, the purpose of which can be fairly characterized as being for "other than conditioning spaces and maintaining comfort". Some common examples are fume hoods, energy recovery devices, filters associated with energy recovery devices, high exhaust stack discharge velocity (particularly those determined as a result of the need to meet "wind-wake" and or other safety-driven analyses) and the sound attenuation made necessary by inclusion of such elements of system design. The standard itself recognizes, in sub-section b. of 6.3.3.1, one of the cited examples, namely, heat recovery devices, even though the energy recovered is not that which is associated with a process in the airstream, as might be argued by a rigid interpretation of the given definitions. This distinction is made, as part of this request, in recognition of Interpretation # IC 90.1-2001-11 dated 25 January 2004 and in the hope that the committee will view this request in the context of a more narrow, focused investigation of the reasonableness of considering elements of Laboratory Exhaust Systems, rather than the entire system, as falling outside the bounds of the requirements of Table 6.3.3.1.

Interpretation: Vanderweil Engineers interprets sub-section b. of Section 6.3.3.1 as allowing the following additional credits to be taken when calculating compliance with prescriptive Fan Power Limitation requirements of Table 6.3.3.1, for Laboratory Exhaust Systems:

1. The entire pressure drop of filtration, or other air cleaning devices, whose inclusion in the system is for the sole purpose of being accessory to energy recovery devices.
2. The additional nameplate horsepower requirement associated with the difference between the pressure drop of the projects' fume hoods and that of a reasonable and customary exhaust grille selection.

3. The additional nameplate horsepower requirement associated with the difference between the design exhaust stack velocity and the discharge velocity of a reasonable and customary exhaust louver selection.
4. The additional nameplate horsepower requirement associated with the difference between the pressure drop of a sound attenuator needed to accommodate the added fan sound power of items 1, 2 and 3, including the energy recovery device as well and that of a sound attenuator, if any, needed in the absence of items 1,2 and 3.

Question: Is this interpretation correct?

Answer: No

Comments: None of the outlined design additions, with the possible exception of fume hoods in item (2), are required to provide a safe, healthy environment in the occupied space or for environmental considerations per Section 2.5. Parts of the systems provided for mandatory safety and health regulations shall be allowed as per static pressure [SP_{HR}] credit in the fan power limitations of 6.3.3.1 per item 6.3.3.1 b.