INTERPRETATION IC 90.1-1999-8 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-1999
Energy Standard for Buildings Except Low-Rise Residential Buildings

January 25, 2004

Request from: Jeffrey G. Boldt, P.E. (E-mail: boldtjg@kjww.com), KJWW Engineering Consultants, 802 West Broadway, Suite 312, Madison, WI 53713-1839.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-1999, Section 3.2 Definitions and Section 6.3.3 Air System Design and Control, specifically relating to the definition of *fan system energy demand (or fan system power)*.

Background: 6.3.3 is not completely clear about the definition of total fan system power. Section 3.2 defines the following:

Fan system power is defined as " the sum of the nominal power demand (nameplate horsepower) of motors of all fans that are required to operate at design conditions to supply to supply air from heating or cooling source to the conditioned space(s) and return it to the source or exhaust it to the outdoors".

Marked (nameplate) rating is defined as "the design load operating conditions of a device as shown by the manufacturer on the nameplate or otherwise marked on the device."

This could be interpreted to allow equipment manufacturers to add the brake horsepower to one of the labels on the motor or air handling equipment and meet the standard when the maximum horsepower that the motor(s) could deliver would exceed the standard.

I am in favor of the committee ruling that the above interpretation is correct because:

1. It encourages selecting efficient equipment (if motor nameplate is the governing factor, the standard would allow inefficient equipment with motors that have a high service factor).
2. It allows selecting motors below full load for applications that require high reliability.
3. There is no energy penalty for over-sizing 3-phase motors unless they are severely oversized (e.g. one prominent manufacturer has published efficiency curves that show the maximum efficiency to occur at around 90% load, and a 1.5% reduction in efficiency at 50% load, and a 5.5% reduction at 25% load).

Interpretation: Equipment manufacturers are allowed to add the brake horsepower to one of the labels on the motor or air handling equipment and meet the standard even though the maximum horsepower that the motor(s) could deliver would exceed the requirements in the standard.

Question: Is this interpretation correct?

Answer: No

Comments:

The committee agrees that the combination of definitions could be loosely interpreted as you have suggested based on the Marked (nameplate) rating definition, especially when taken one step further to also include the published definition for "design conditions" – but it is not clear nor definitive. The intent of the standard is to require compliance validation by inspection of the motor manufacturer's nominal hp listed on the motor nameplate. It should also be noted that the committee will continue to review and investigate opportunities to further clarify the requirements of the standard.