

**INTERPRETATION IC 62-1999-30 OF  
ANSI/ASHRAE STANDARD 62-1999  
VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY**

TRANSFER TO 62-1999 APPROVED: August 14, 2000

Originally issued as interpretation of Standard 62-1989 (IC 62-1989-24) on July 12, 1995, but transferred to Standard 62-1999. Since no changes were made to the relevant sections of Standard 62-1999, no revisions were made to the interpretation as part of this transfer.

**Request from:** David O. Vick, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831

**References.** This request refers to Table 2 and subclause 6.1.3.3 of ANSI/ASHRAE 62-1989.

**Background.** Table 2 prescribes supply rates of acceptable outdoor air required for acceptable indoor air quality. The standard states (6.1.3.3), "The values in Table 2 define the outdoor air needed in the occupied zone for well-mixed conditions (ventilation effectiveness approaches 100%)." The standard recognized that ventilation effectiveness is often much lower than 100%, i.e.,  $E_v < 1$ , because there is less than perfect mixing in the occupied space.

**Mr. Vick's Interpretation.** Mr. Vick's letter opines, ". . . that the required ventilation rate must account for imperfect mixing, and that the values in Table 2 refer to an effective volumetric flow ( $V_{eff}$ ) rather than what might be called the mechanical ventilation rate ( $V_{act}$ ). Therefore, in practice, the engineered ventilation rate must be greater than the values in Table 2 in order to compensate for imperfect mixing of the ventilation air in the occupied space."

**Question.** Is Mr. Vick's interpretation of Table 2 and 6.1.3.3 correct as given above?

**Answer.** Yes.

**Comment.** If the ventilation effectiveness is  $E_v$  the values in Table 2 must be multiplied by  $1/E_v$ . For example, if the ventilation effectiveness is 0.8, typical of ceiling supply and return system in a heating (warm supply air) mode, the values in Table 2 must be multiplied by  $1/0.8 = 1.25$ . For a ceiling supply and return system in the cooling mode, the ventilation effectiveness is around 1.0 so no adjustment is required. For a displacement ventilation system, ventilation effectiveness may be greater than one, allowing values in Table 2 to be reduced for a displacement system.