INTERPRETATION IC 62-1989-24 OF
ANSI/ASHRAE STANDARD 62-1989
VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY

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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.