INTERPRETATION IC 62-1999-15 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 62-1989-7) on June 27, 1993, 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: This is a joint request, originated by Ms. Carol C. Brumfield, Industrial Hygienist, Law Engineering, P.O. Box 5726, 3901 Carmichael Avenue, Jacksonville, FL 32207; and supplemented by John D. Cowan, Cowan Quality Buildings, 74 Willowbank Blvd, Toronto, ON Canada M5N 1G6.

References: This request refers to Standard 62-1989, 6.1.2 Ventilation Requirements, including the footnote to Table 2; and to 6.2.1 Quantitative Evaluation, second paragraph.

Background: Table 2 footnote states: "Table 2 prescribes supply rates of acceptable outdoor air required for acceptable indoor air quality. These values have been chosen to control CO_2 and other contaminants with an adequate margin of safety and to account for health variations among people, varied activity levels, and a moderate amount of smoking. Rationale of CO_2 control is presented in Appendix D."

The last three sentences of 6.1.3 state: "Carbon dioxide concentration has been widely used as an indicator of indoor air quality. Comfort (odor) criteria are likely to be satisfied if the ventilation rate is set so that 1000 ppm CO_2 is not exceeded. In the event CO_2 is controlled by any method other than dilution, the effects of possible elevation of other contaminants must be considered (see Refs 12-18)."

For the Indoor Air Quality Procedure a similar caution is given in the second paragraph of 6.2.1.

Ms. Brumfield's letter states that some are using this "dilution" provision as justification to install CO_2 filtration systems in buildings, in lieu of designing according to the ventilation rate method, in order to cut first costs and operating costs associated with the additional outdoor air requirement within the building.

Mr. Cowan's letter states that CO_2 sensors are being used by some to control the volume intake of outdoor air and by others to control of CO_2 filters. In either case, the referenced sections are cited as justification for claiming compliance with the standard if CO_2 is maintained under 1000 ppm.

Both requesters interpret that:

1. The Ventilation Rate Procedure is intended to control many more factors than the level of CO_2. That very fact disallows the use of CO_2 control to reduce outdoor air intake below Table 2 values, if compliance with the Ventilation Rate Procedure is claimed.

2. The Air Quality Procedure requires consideration of many more factors than the level of CO_2. Therefore, CO_2 control of outdoor air intake or the filtration of CO_2 can not be used as sole proof of compliance under the Air Quality Procedure.

3. The standard allows for a filtration system to be installed in order to reduce the outdoor air requirement if there are known potential contaminants that will be generated in the facility, such as Environmental Tobacco Smoke (ETS) from smokers or formaldehyde from indoor processes.

Question: Are the above interpretations by Ms. Brumfield and Mr. Cowan correct?

Answer 1: Yes

Answer 2: Yes

Comment: Filtration of CO_2 is not an appropriate way to comply with Standard 62, since CO_2 is a surrogate for other contaminants. Removal of CO_2 may not have any effect on the contaminants for which it is a surrogate (e.g., occupant odors).

Answer 3: Yes

Comment: Standard 62-1989 allows air filtration (air cleaning) to be used to reduce outdoor air requirements below rates specified in Table 2, but only if the Indoor Air Quality Procedure is used (see 6.1.3.2). It is possible that air cleaning provided in accordance with this procedure to handle "known potential contaminants generated in the facility" will not allow outdoor air requirements to be reduced below the minimum values in Table 2.