

**INTERPRETATION IC 62-1989-20 OF
ASHRAE STANDARD 62-1989
VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY**

January 29, 1995

Request from: Debbie Paolini, Manager of Health and Safety, The Dufferin-Peel Roman Catholic Separate School Board, 40 Matheson Blvd. West, Mississauga, Ontario L5R 1C5, CANADA

References: This request refers to the CO₂ requirements in ASHRAE Standard 62-1989, 6.1.3 Ventilation Requirements.

Background:

Ms. Paolini's letter includes the following comments:

Exception #2 under 6.1.3 Ventilation Requirements, reads in part: "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 CO₂ is not exceeded."

CO₂ is also referenced in 6.2.1, Quantitative Evaluation, in Table 3, Guidelines for Selected Air Contaminants of Indoor Origin and in Appendix D, Rationale for Minimum Physiological Requirements For Respiration Air Based on CO₂ Concentrations.

It is unclear what is meant by the clause, "ventilation rate is set so that 1000 ppm CO₂ is not exceeded."

Ms. Paolini's letter continues, "as a result of continuous monitoring of indoor air quality using CO₂ levels in several classrooms, we have noted that CO₂ levels peak when students enter the classroom in the morning, after morning recess, after lunch and after afternoon recess. In some instances these peaks are above 1000 ppm CO₂. Recently the provincial Ministry of Labour issued a Compliance Order at one of the schools to 'reduce the levels of CO₂ below the guideline of 1000 ppm, whenever the classrooms are occupied.'"

Question 1: Is the 1000 ppm CO₂ a ceiling value or a time weighted average value?

Answer 1: The reference to 1000 ppm CO₂ in Section 6.1.3 is only as a point of information. This is not a requirement of ASHRAE 62-1989. Since it is not a requirement it is neither a ceiling value nor a time weighted average value. Rather, it can be considered a target concentration level. Since the comfort (odor) criteria are likely to be satisfied when the CO₂ does not exceed 1000 ppm the converse is also likely to be true, i.e., when the CO₂ level exceeds 1000 ppm, the comfort (odor) criteria may not be satisfied.

Question 2: If it is a time weighted average value, how are CO₂ test results to be calculated and weighted?

Answer 2: Moot because of Answer 1.

Question 3: Would CO₂ levels measured only during room occupancy be used or CO₂ levels measured throughout the time period of ventilation system operation?

Answer 3: CO₂ levels should be measured during the time of occupancy. This is defined for the classroom as the time between initial occupancy in the morning and dismissal time for students.