



Commercial

Two myths surrounding ASHRAE 62's CO₂ Guideline

On the Web

ASHRAE Standard 62 Interpretation IC 62-1989-29 dispels many of the myths surrounding CO₂. Find the interpretation online using the following instructions:

- **Step #1:** Go to www.ashrae.org
- **Step #2:** Click "Standards and Codes" under "Resources & Activities"
- **Step #3:** Click "Interpretations of Standards" under "Publication Updates"
- **Step #4:** Click "Interpretations for Standard 62-1989, *Ventilation for Acceptable Indoor Air Quality*"
- **Step #5:** Click "Interpretation 62-1989-29."

Myth #1

The CO₂ guideline in Table 3 is applicable when using the IAQ Procedure.

Carbon dioxide (CO₂) is the only gaseous contaminant directly related to building occupancy. The human body oxidizes carbon and hydrogen in foods and emits CO₂ and water as waste products. According to ASHRAE 62's Ventilation Rate Procedure, CO₂ can be used as an indicator of human bioeffluents (odors) and a diagnostic tool in determining whether or not human comfort (odor) criteria are satisfied.

However, the use of CO₂ as the sole indicator of IAQ is often criticized. All too often buildings experiencing odor complaints are given a clean bill of health based on CO₂ levels alone.

According to ASHRAE Interpretation 62-1989-29, the CO₂ guideline value in Table 3 of the standard is not applicable when using the IAQ Procedure. The interpretation, as quoted below, clearly dispels Myth #1:

As quoted from Interpretation 62-1989-29:

Question. When the IAQ Procedure of Section 6.2 is employed and gas phase air cleaners are installed to control bioeffluents and odors, is the 1000 ppm CO₂ guideline value in Table 3 still applicable?

Answer. No.

Comment. If the bioeffluents that result in perceptions of human body odor are controlled by means other than dilution ventilation, for example, by gas phase air cleaning, then the indoor carbon dioxide concentration is no longer a useful indicator of perception of these objectionable bioeffluents.

ASHRAE Interpretation IC 62-2001-05 further explains the purpose of the CO₂ guideline value.

As quoted from Interpretation 62-2001-05:

The reference to 700 ppm CO₂ in Section 6.1.3 is only as a point of information. This is not a requirement of ASHRAE 62-2001.

Myth #2

CO₂ concentrations relate directly to the impact on human health.

ASHRAE 62's criteria for human comfort are subjective in nature. CO₂ is a surrogate gas indicator of human body odor. According to the standard, comfort (odor) criteria are likely to be satisfied when the CO₂ concentration does not exceed 700 ppm. However, the criteria is based only on the perception of odor and does not indicate an impact on human health. ASHRAE Interpretation 62-1989-29, as quoted below, clarifies this point:

As quoted from Interpretation 62-1989-29:

The 1000 ppm guideline in Table 3 is based...on the need to control the level of bioeffluents in order to provide indoor air quality that is acceptable in terms of olfactory perception (odor). Furthermore, indoor carbon dioxide concentrations in the range of 1000 ppm or less are not related to any health impact from the carbon dioxide itself, only to odor perception.



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