

# APPLICATION NOTE



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## Simple Ventilation Check Using an IAQ Monitor HVAC Application



Heating, ventilating, and air conditioning (HVAC) systems condition and move air to create and maintain desirable temperature, humidity, ventilation and air quality. Most HVAC systems re-circulate a significant portion of the indoor air to maintain comfort and reduce energy costs.

Concern for energy conservation has made building construction nearly airtight, which, in turn, has made proper ventilation more important than ever. In approximately 500 indoor air quality (IAQ) investigations in the last decade, the National Institute for Occupational Safety and Health (NIOSH) found that the number one source of indoor air quality is inadequate ventilation (52%).

A good indicator of proper ventilation is the level of Carbon Dioxide (CO<sub>2</sub>) present in an area. Carbon dioxide is a normal by-product of respiration, combustion and other processes. Current technology now allows easy and relatively inexpensive measurement of CO<sub>2</sub> to help ensure that ventilation systems are delivering the recommended minimum quantities of outside air to the building's occupants. Elevated levels of CO<sub>2</sub> may indicate that additional ventilation is needed.

ASHRAE Standard 62 recommends an indoor CO<sub>2</sub> level not to exceed about 700 parts per million (ppm) above outdoor ambient air which is typically about 300 to 400 ppm. The Comfort Chek™ 500 is used to check levels of carbon dioxide in buildings, measuring in a range of 0-5,000 ppm.

Temperature and humidity are two other basic IAQ measurements that have a direct impact on perceived comfort and, in turn, employee concentration and productivity. ASHRAE Standard 55, Thermal Environmental Conditions for Human Occupancy, sets guidelines for recommended temperature and humidity ranges. The Comfort Chek™ 500 measures air temperature as well as dew point and wet bulb temperature. Relative humidity is simultaneously measured from 0-99.9% volume.



IAQ audits to check the safety, comfort or the health of the indoor environment typically are conducted either via a walk-through with an instrument in hand and pump running, or with an instrument set up to log data on a daily basis in the working environment. The Comfort Chek™ 500 stores 26,000 data points that can be downloaded via the USB port to the proprietary IQ Chek™ software to view readings and check for trends.