



ASHRAE 62 as it applies to the iAIRE control system

ASHRAE Standard 62.1-2010 has two methods for calculating outside air requirements in new or renovated buildings. The first is called the Ventilation Rate Procedure (VRP) and the second is called the Indoor Air Quality Procedure (IAQP).

The VRP usually requires large quantities of outside air to flush or dilute the building air contaminants. The VRP is the most common and accepted method among consulting engineers. It requires calculating outside air per person, adding outside air per square foot, then applying those values based on the ASHRAE tables and formulas that allow the outside air to be calculated at the source, i.e. the formulas allow the engineer to take into account all system losses based on the type of HVAC system being designed.

Even though the IAQP is in the same ASHRAE Standard as the VRP, engineers have been less accepting of the IAQP as it requires running mass balance equations for contaminants of concern utilizing an air purification technology at a known effectiveness for each chemical modeled. This method is traditionally a time consuming method and most consultants do not have that time to invest. As stated in the IMC 2006 commentary notes, the IAQP is the **direct solution** for *good IAQ* and the VRP is the **indirect solution** to *acceptable IAQ*.

Section 6.3.4.2 states: “Using a subjective occupant evaluation conducted in the completed building, determine the minimum outdoor airflow rates required to achieve the level of acceptability specified in section 6.3.3 within each zone served by the system.”

Section 6.3.3 states: “**Perceived Indoor Air Quality.** The design level of indoor air acceptability shall be specified in terms of the percentage of building occupants and/or visitors expressing satisfaction with perceived IAQ.”

These two sections allow the owner to control the CO₂ and VOCs to acceptable levels inside the building. The iAIRE system actively detects these levels, therefore the building is bringing in the appropriate amount of air to maintain acceptable conditions. With iAIRE using bipolar ionization to actively clean the air, the overall system will require less outside air to maintain clean air in the space. The benefit to the owner is the reduction of the outdoor air and the costs associated with bringing this air into the space as well as the active feedback of the system showing clean air in the space.