

Winds of Change



Hassan Younes– 2016
ME Consultant

Across the globe, people spend most of the day in buildings, be it at school or at the workplace. Maintaining a clean indoor environment, in terms of air quality and keeping the temperature at a comfortable level in a building, is crucial for the health and efficient functioning of its occupants.

Naturally, this involves having a good ventilation system that ensures a constant supply of fresh air and which helps keep CO₂ levels in check.

GRFN's Say:

Hassan Younes points out that CO₂ levels are most of the time a direct measurement of indoor air quality. Some practitioners consider CO₂ to be a direct indicator of the pollutant that the ventilation system is trying to control, like bio-effluents generated by people. Since bio-effluent is impossible to measure CO₂ is measured instead and high values of CO₂ for an occupied space normally means that the ventilation of that space is poor. Note however that CO₂ concentration is not a good indicator of the concentration and occupant acceptance of other indoor contaminants, such as volatile organic compounds off-gassing from furnishings and building materials. Thus CO₂ concentration is not always a reliable indicator of overall building air quality. Another fact should also be highlighted is that only CO₂ levels above 5000 PPM are considered as a health hazard. These values are seldom found in a building.

In the Middle East people spend most of their time inside buildings. Therefore it is crucial to maintain an adequate indoor air quality. Also during summer, outside air is at high temperatures and contains a lot of moisture that needs to be cooled and dehumidified before being introduced into the building.

Q- What are the challenges involved with maintaining good indoor air-quality in a building in the Middle East?

Different issues arise through the different life stages of a building, from design through installation, commissioning and finally operation and maintenance.

A wrong supply of outside air humidity content is one of the most common design mistakes we see, which reduces indoor thermal comfort and indoor air quality.

Wrong installations where exhaust air louvres are placed close to an outside air louvre is one of the common mistakes we see on site.

Improper commissioning where sensors and sequence of operation of ventilation systems are not properly configured is also a very common problem we face in many existing buildings.

Last but not least is operation and maintenance where uninformed technicians sitting behind building management systems stations override controls which normally lead to lower indoor thermal and air quality. Poor maintenance of filters and not replacing broken filters are also a very common practices that lead to lower indoor air quality. ■