YOU ARE WHAT YOU BREATHE: THE IMPORTANCE OF INDOOR AIR QUALITY

Working professionals spend a significant part of the day inside office buildings. Ensuring proper indoor air quality is thus of paramount importance for their well-being as well as employee productivity.

WHY IS INDOOR AIR QUALITY IMPORTANT?

No matter what industry you work in, barring a minority who may be required to be on the field, chances are that you spend at least 8 hours of the day in a workplace. That is one-third of the day spent inside office buildings, which means it is imperative to consider the quality of the environment you are in for this duration.

Indoor air quality is one such aspect that business owners, building and facility managers as well as employees should consider. Maintaining good standards can provide employees a comfortable working environment and improve their productivity, while poor standards could affect their focus, wellbeing and even cause health problems. For business owners and facility managers, poor air quality standards can result in both financial losses due to employee healthcare reimbursements, reconstruction and rectification costs as well as a hit to brand reputation.
WHAT CAUSES POOR INDOOR AIR QUALITY STANDARDS?

There is no one single factor that causes poor indoor air quality standards. Air quality depends on a combination of complex factors that involve pollutants in indoor environments. Recent IAQ audits in workplaces in Singapore have shown that, of these pollutants, three certain contaminants pose a bigger problem to occupiers and facility stakeholders. They are:

- Total Volatile Organic Compounds (TVOC) – Toxic in high concentrations and short-term exposure can have harmful effects on the health.
- Formaldehyde – Occupiers can experience adverse health effects such as watery eyes, skin & throat irritation and coughing. Particularly harmful for expecting mothers.
- Mold – Severe mold growth can be disastrous for the workplace tenants as well as to the building’s infrastructure.

Affected workplaces can face high remediation costs, so ensuring proper air quality therefore demands controlling these factors. This requires a three-pronged approach that involves:

- Identification of the pollutant sources and removal from the building or isolation from people through barriers – either physical or in the form of air pressure variations
- Dilution of pollutants that do enter the building and removal through ventilation
- Filtration to clean the air of pollutants

This can be accomplished if there is a well-designed building ventilation system that is efficiently maintained and operated.
WHAT TO LOOK FOR IN A BUILDING VENTILATION SYSTEM

Aside from the layout of the office space and pollutant source management, a building’s heating, ventilation and air conditioning (ACMV) system plays a major role in determining its indoor air quality. Consider the following aspects when you design a ACMV system:

1. **People and equipment**
   Determine how many people and equipment there is in your building which you want the ACMV system to supply air to. If an area is being used in a way different from its intended purpose, like when a storage area is converted to a meeting room, make the necessary modifications to the ACMV system to deliver sufficient air to this space.

2. **Entry of fresh air from outside**
   Ventilation systems require adequate supply of outside air to dilute pollutants dispersed from equipment and materials in the building. Ensure your system has access to fresh air from outside, proper filters to weed out pollutants like carbon monoxide, pollen and dust as well as easy distribution of this air to occupied spaces within the building.

3. **Have proper maintenance programs in place**
   Regular maintenance of equipment is essential for uninterrupted delivery of quality air into and around the building. Have proper preventative maintenance procedures in place to keep your office staff comfortable.

INDOOR AIR QUALITY IS A SHARED RESPONSIBILITY

Ensuring proper indoor air quality is not just within the purview of one single stakeholder. Building management personnel, tenants and business owners have to work collectively. Some duties like maintenance fall under the building management, while controlling renovation materials that come into the building is the job of the occupants. Other tasks like cleanliness and housekeeping require the cooperation of both teams. Each and every individual involved have specific responsibilities that when addressed, together make for a good working space with quality air.
THE ROLES OF OFFICE MANAGERS AND TENANTS

Every business that operates on leased space in Singapore will be required to nominate an office manager. This person is responsible for policies relating to the office, including liaising with property owners and fostering fruitful relationships with building managers to discuss ways to improve the working environment. Here are some ways the office manager can step up to improve indoor air quality:

- **Plan an ideal office layout**
  Plan out an office layout that allows for proper air flow within the office. This means placing furniture, partitions and equipment such that the air circulation, temperature control and pollutant removal functions of the ACMV system can go on unhindered.

- **Coordinate regular maintenance**
  Air conditioner filters, heating and cooling units often require regular maintenance and servicing. It is the duty of the office manager to coordinate with the building management team to keep up this routine and ensure that the entire building sees optimal servicing regularly.

- **Enforce smoking policies**
  Aside from the direct impact on health to smokers, tobacco smoke can interfere with the ventilation system and cost you extra for cleaning and replacing soiled materials. Clearly communicate the smoke-free policy to occupants of your building and work with the building management to devise separate smoking rooms with proper ventilation to prevent smoke from moving into the nearby areas.

- **Minimise exposure to problematic products**
  It becomes the duty of the office manager to ensure that materials that are odorous or which give off pollutants do not impact the indoor air quality in a big way. This could mean keeping out chemical products like adhesives, cleaners and pesticides or ensuring that the ventilation system finds a way to remove the pollutants created from these. During times when remodeling or renovation work is required, work with contractors and facility managers to try and schedule for weekends and ensure that working areas are not exposed to any pollutants generated.
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THE RESPONSIBILITIES OF FACILITY MANAGERS

The Singapore Standard (SS 554) for Indoor Air Quality for Air-Conditioned Buildings is a good resource for building and facility managers to understand the best practices on maintaining good indoor air quality. As a facility manager, it is your responsibility to:

- **Keep the indoor air condition in check**
  Facility managers are the ones who usually have access to the records pertaining to the ACMV design, making them ideal to be in charge of keeping tabs on the maintenance and operation of these systems. It also becomes their duty to develop indoor air profiles of the building and identify potential pollutant sources.

- **Maintain a working ventilation system**
  It is up to facility managers to set up and reinforce standard operating and maintenance procedures. Stay on your feet and respond quickly to emergencies like leaks and floods in the office to prevent indoor air quality problems from developing.

- **Manage potential pollutant sources**
  Pollutants could come from various sources. Cigarette smoke, materials used for renovation and furnishing, pesticides and exhaust fumes in loading docks. Facility managers are required to monitor and manage these sources to limit their entry and impact in areas where people work.

TEAMWORK AND COOPERATION WINS

At the end of the day, it requires a team effort on the part of office managers, building owners, facility managers and occupants to ensure that occupants of a building have access to decent air quality. If we set aside a third of a day to spend inside an office building, we should also ensure that this environment works for our wellbeing instead of harming our health. Preventive actions and common sense maintenance initiatives from all parties concerned can result in quality indoor environments facilitated at reasonable costs. 😊

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