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Indoor air quality and the implications on organisational performance

The challenges and benefits of indoor air quality explained and insights every occupant and manager should know

Few realise that the productivity of employees goes way beyond temperature. In this paper, we discuss some of the other factors that as a landlord, tenant, business owner manager, employee or building manager you should be aware of and their implication on organisational performance and the regulatory requirements. We will look at the financial implications, common causes and what can be done to combat and prevent poor indoor air quality. Keeping employees safe and well at work is the responsibility of every business owner and manager. The area of indoor air quality has never been more important with Australians spending 90% or more of their time indoors



and breathing around 11,000 litres of air per day. This has a profound effect of productivity and profitability as demonstrated by a study that was conducted on a building comparing data before and after a refurbishment where there was a 39% reduction in average sick leave days per employee per month and a 44% reduction in the monthly average cost of sick leave. Also documented was a reduction in poor concentration, fatigue, cold and flu and headaches. Whilst making changes to indoor environments requires an investment in consultation and remediation the payback has been proved with these investment costs being able to be recovered within six months to two years due to higher comfort levels and raised productivity depending on the system type and comfort level. According to findings the annual increase in productivity was worth between 6-115 times as much as the increase in annual energy and maintenance costs. These are statistics we cannot ignore. So, what causes poor indoor air quality? Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. Indoor air pollution comes from basically five different sources: the HVAC (Heating, Ventilation and Air Conditioning) system, human occupants and activities pursued by those occupants, the building and furnishing materials and outdoor air quality. The causes of these pollutants are many. The HVAC plant is often not installed or commissioned as designed and proper maintenance is often neglected. The rising cost of office space and energy costs has provided a catalyst for owners and occupiers to increase the occupant density while ventilation requirements have not kept pace and shutting down ventilation during unoccupied times. Carbon monoxide and smoking particulates present indoors are the direct result of human activity, along with everyday tasks such as photocopying which can produce ozone, hydrocarbons and nitrogen oxides. Buildings and furniture particularly

those that are new emit pollutants such as volatile organic compounds (VOC's) and formaldehyde. Cleaning chemicals are also an offender in terms of VOC's. Outdoor air in urban areas often contains pollutants such as carbon monoxide, nitrogen oxides, sulphur dioxide, dust particles, metals and hydrocarbons produced by burn fossil fuels often from vehicle exhausts which can be brought indoors by the ventilation system. These pollutants left untreated can lead to Sick Building Syndrome (SBS)

The approach to indoor air quality requires a holistic approach. Whilst there are many steps that can be taken by building occupiers to self-treat indoor air quality it can be best left to a professional in the field who can undertake an audit of area in question. This audit will identify the next steps in any given specific area. Generally, remediation often includes indoor air and surface testing, HVAC plant testing and reporting, maintenance audits and energy audits which will go on to make recommendations for plant optimisation, fresh air or ventilation changes, increasing air filtration, UV air treatment and contaminant isolation.

The importance of indoor air quality is not just a contributor to sickness but also an area costing organisations time and money. It goes far beyond temperature control to five main areas such as

HVAC (Heating, Ventilation and Air Conditioning) system, human occupants and activities pursued by those occupants, the building and furnishing materials and outdoor air quality. These areas can all be remediated with short term return on investment. Professionals can take a holistic approach that covers multiple contributing factors of poor IAQ and makes multiple recommendations.



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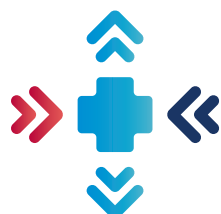
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