

PENTAGON



HEALTHY AND INTELLIGENT BUILDINGS ARE NOW CRITICAL

The growth of the building management system (BMS) and the building automation industry in general, over the last 12 to 18 months, has been extraordinary. This explosion has been led mainly by the healthy buildings, energy management and green buildings initiatives. This trend will continue to grow in the near future as a result of environmental air quality issues and the onslaught of Covid, as well as rising energy costs. Furthermore, studies continue to show that staff performance is directly linked to their comfort and a positive experience in the workplace.

A healthy, intelligent building can be defined as one which contains numerous intelligent connected devices that generate massive amounts of data, which is analysed to provide recommendations and drive actions that create a healthy and comfortable working environment for occupants. It also puts measures in place to prevent the spread of viruses and germs. Additionally, energy management and green buildings are environmentally focused, with an eye on reducing a building's carbon footprint and saving companies money on utility bills and taxes.



VENTILATION & AIR CHANGES

This has become a bit more complex over the last few years as often the air outside may be dirtier than the air inside a building. Based on the WHO air quality guidelines report dated 2005: “The highest concentrations of the classical indicators such as PM10 and sulfur dioxide are found in Africa, Asia and Latin America.” PM10 is the particulate matter in the air with a diameter of 10 micrometers or less. They are small enough to enter the throat and lungs and can cause wheezing, chest tightness and difficulty breathing.

“It is vitally important, if not essential, that all buildings now monitor the fresh air supply coming into a building as well as the air quality on the floor. This is the only way to correctly determine if your building’s air filters are working as they should, as well as ascertain the risk to your occupants’ health. To correctly monitor your building’s air quality, you need to install air quality sensors (VOC) and PM2.5 sensors,” says Anthony van Wijk, BMS product manager at Elvey.

Another element to consider is the inherent cost of using circulated air versus fresh air. The more one opens the fresh-air dampers, the higher the cost to condition a building’s environment. This then impacts on energy management and green buildings policies. “This is why it is important to consider that to correctly design a healthy building, you need to create an intelligent building. And to create an intelligent building, you need an integrated BMS,” says Van Wijk.



HUMIDITY

To set a baseline for a healthy building, it is always good to reference other organisations with more experience in dealing with health-related issues. Healthcare is the second most regulated segment in the world (after nuclear power), and so it is the natural option to serve as the benchmark. Hospitals go out of their way to ensure humidity in their facilities is between 40 and 60%. Too low and occupants will have dry eyes, too wet and it creates the perfect conditions for germs to spread. Building owners who live in humid areas face the biggest challenge; however, any building with a canteen or coffee station should also take special precautions to prevent the build-up of mould or conditions ideal for germs and virus to grow.



ENERGY MANAGEMENT

To better understand a building, you need to know how much electricity and water is being used. This is one of the first elements discussed by a facilities teams; however, it is rarely adopted. “If you know where you are using electricity, then you can find ways to save on energy costs via your utility bill or taxes. There is an added benefit to corporate companies as they need to report on their energy usage for tax purposes, so we envisage this rolling out to more non-listed companies in the future,” says Van Wijk.



OCCUPANT TRACKING / VISITOR MANAGEMENT

Do you know who is inside your building? This was a question once reserved only for the security team, but how can a facilities manager start to answer the building's health-related questions if they can't determine who is inside their building. Are they healthy, who did they come in contact with etc.? This is one of the most overlooked and the most critical elements in building management. Occupancy and visitor management can be done via cameras or a visitor management platform and pulled directly into a BMS. BMS users also have the added feature of using certain camera's onboard thermal sensor to determine an occupant temperature and ensure they do not have a fever.



LIGHTING CONTROLS & UV SURFACE STERILISERS

The types of lighting employed at a facility have a direct influence on the staff's creativity and productivity. "How you use them therefore has a direct influence on your pocket, either by occupancy switching or general occupant health. Not enough companies spend the correct amount of time, money and effort selecting the optimum lighting solution and they end up bearing the brunt in the long term. Another option to be explored at any facility is the use of UV surface sterilisers. These can be deployed to good effect to combat the spread of germs and viruses," says Van Wijk.



PRESSURE & ZONING

We need to monitor and manage how we shift air around the building. "Every time you open a door, a high and low pressure is created. This can move airborne germs very effectively around a building, contaminating a very wide area. A facilities manager must understand the shape of his building as well as the movement of people to better understand this topic. Remember, air flow in a building is a germ's super highway," says Van Wijk.



CARBON FOOTPRINT

In South Africa, the Carbon Emissions Tax is already here. Gazetted in 2019, it allows Government to tax customers based on their emissions. "Government will make an assessment and it's it up to the user to prove or disprove the government's assessment. The only way to rebut their findings is to correctly monitor, manage and reduce your emissions and fortunately this can be done via an efficient BMS system," says Van Wijk.



TEMPERATURE

(Thermal discomfort). It's important to keep the temperature at a comfortable level. When people are dissatisfied with their thermal environment, not only is it a potential health hazard but also effects their ability to function effectively.

There is no doubt that in order to meet compliance regulations and to ensure that building occupants are comfortable and healthy, the incorporation of a building management system is critical. “Chat to the team at Elvey about how our solutions will assist you in installing a BMS that reduces energy costs and creates an environment conducive to productivity and personal satisfaction,” says Van Wijk.



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