

# HEALTHY AND CONTROLLED ENVIRONMENT IN HEALTHCARE FACILITIES



HOSPITAL

**ALERTON**

# ESTABLISHING TRUSTWORTHY SPACES WITH BUILDING MANAGEMENT SYSTEMS

Health and environmental issues are having a direct impact on the health sector, which has had to adapt to accommodate both the immediate and longer-term results of the global health crisis.

Fortunately, the steps taken to mitigate these offers both practical and psychological benefits - it's not just a matter of making patients, visitors and staff learning spaces cleaner or safer, it's also important that these steps are publicized to make them feel safer, too. Creating and maintaining confidence is every bit as important as the underlying steps and practical measures that have been put in place.

Many of the initial steps were remedial-stop-gap solutions designed to maintain an immediate continuity of operation. Since then, time and more detailed considerations have enabled building managers and their teams to better assess the needs of their portfolio from a number of perspectives.

## STEPS TO CREATE MORE SAFE HEALTHCARE SPACES



### Increase fresh air with ventilation

Improve indoor air quality: Proper air exchange can dispel odors, chemicals and CO<sub>2</sub>, while balancing energy use.



### Get the humidity right

Hit your humidity target: 40-60%. In that range, you'll decrease exposure to particles and improve occupant comfort.



### Keep temperatures comfortable

The right temperatures improve well-being as well as confidence and productivity. Catch issues before people notice with mobile data and alerts.



### Improve your filtration

Effective filtration is essential for air quality: From pollutants to microbes, reduce particles in recirculated and outdoor air.

# A CONTROLLED ENVIRONMENT

Trustworthy environments are achieved by addressing three key factors enhancing occupants comfort.

- Indoor air quality
- Lighting
- Compliance with building regulations

Taken in combination, these can deliver an environment that better supports the needs of its occupants as well as help to provide reassurance that it is safe.

## IMPROVING AIR QUALITY

Properly ventilating hospitals and healthcare facilities requires a careful balance between bringing in oxygenated air from outdoors and removing stale air heavy with carbon dioxide. Using indoor air quality sensors, as part of a wider building management system (BMS), is an effective way of monitoring the presence of a range of pollutants. The latest generation of sensors enables building owners to strategically outfit their buildings without significant expenditure.

Indoor air quality is not just about outright cleanliness but also associated factors such as ventilation, pressure, temperature and relative humidity as all have a bearing on occupant comfort. In most cases, the optimal range for humidity is around 40-60% as this is where the communication of viral pathogens is at its lowest; it is more difficult to control the spread of potential infections in excessively dry conditions. On the other hand, excessive humidity promotes the growth of dust mites and fungi, which are known to exacerbate respiratory conditions and allergies.



### Checklist to improve indoor air quality

Proper air exchange can dispel odors, chemicals and CO<sub>2</sub> whilst balancing energy use and reducing disease transmission. Our Building Management Systems can control the correct amount of fresh air based on environmental conditions and meet building regulations.



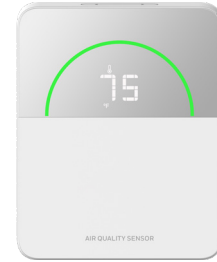
### Control temperature

Maintaining proper temperatures in your building not only improves occupant comfort but can also potentially help reduce the growth and spread of many pathogens.



### Control and change room pressurization

Field devices like sensors can process and transmit critical building data directly to controllers. When you can measure the power demand of each device, you can optimize the entire system.



*Indoor Air Quality (IAQ) sensors can track data points and climate parameters, recording information about the environment and enabling you to monitor indoor air conditions.*



### Balance humidity

High humidity levels can promote the growth of bacteria and mold and create an environment where dust mites can thrive. Lower humidity creates other concerns like dry, itchy skin, transmission of viruses and irritation of the upper respiratory system. Humidity sensors and Indoor Air Quality Sensors can help to manage and maintain optimal humidity levels for your building.

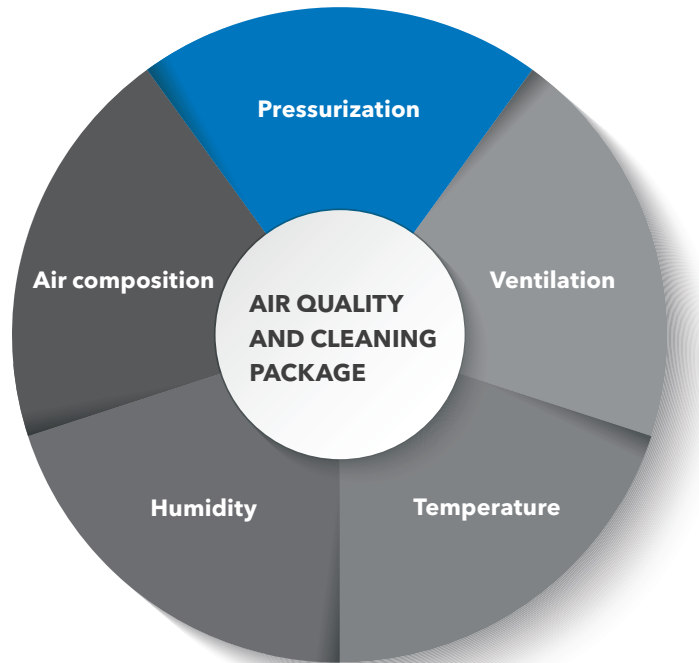
<sup>1</sup> Yale News, Hopes of pandemic respite this spring may depend upon what happens indoors, Bill Hathaway, March 30, 2020 [Accessed May 18, 2021]

# MANAGING ENERGY USAGE

Managing indoor air temperatures can be a complex balancing act. Running a BMS in the most effective and efficient ways requires a balance between comfort and safety – particularly when your main priority is patient care.

A fully-featured BMS is also capable of monitoring light readings to provide an optimum level of illumination, only switching on artificial lighting when and where it is needed. This not only helps maintain occupant comfort it can also help minimize avoidable energy expenditure. Significantly, sensors not only measure temperature, humidity, air quality and light levels, they can monitor occupant activity and building capacity, helping maintain regulatory compliance - building confidence and creating trust.

Areas such as hallways, reception areas and communal spaces can be run more efficiently, especially if footfall and usage aren't constant. For example, air conditioning systems, lighting and audio visual equipment in parts of a building not being used can be automatically switched off or turned down to energy saving mode.



## SHOW AND TELL

Hospitals and healthcare facilities, such as GP surgeries and community health centers, are faced with a fundamental problem. They not only need to maintain appropriate measures to support the safety of their occupants, they also need to communicate this to patients, staff and visitors. This is important because it can help:

- Encourage reluctant patients to attend consultations and appointments
- Build confidence amongst visitors that they are protected during their attendance
- Create a reassuring working environment for both medical and support staff

It's not just about working to limit the potential spread of infections, it's also about conveying these steps to everyone who interacts with healthcare facilities to reassure them that their welfare is a paramount consideration.

<sup>2</sup> Riddell, S., Goldie, S., Hill, A. et al. The effect of temperature on persistence of SARS-CoV-2 on common surfaces. *Virology* 17, 145 (2020). <https://doi.org/10.1186/s12985-020-01418-7>, October 7, 2020 [Accessed May 18, 2021]

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