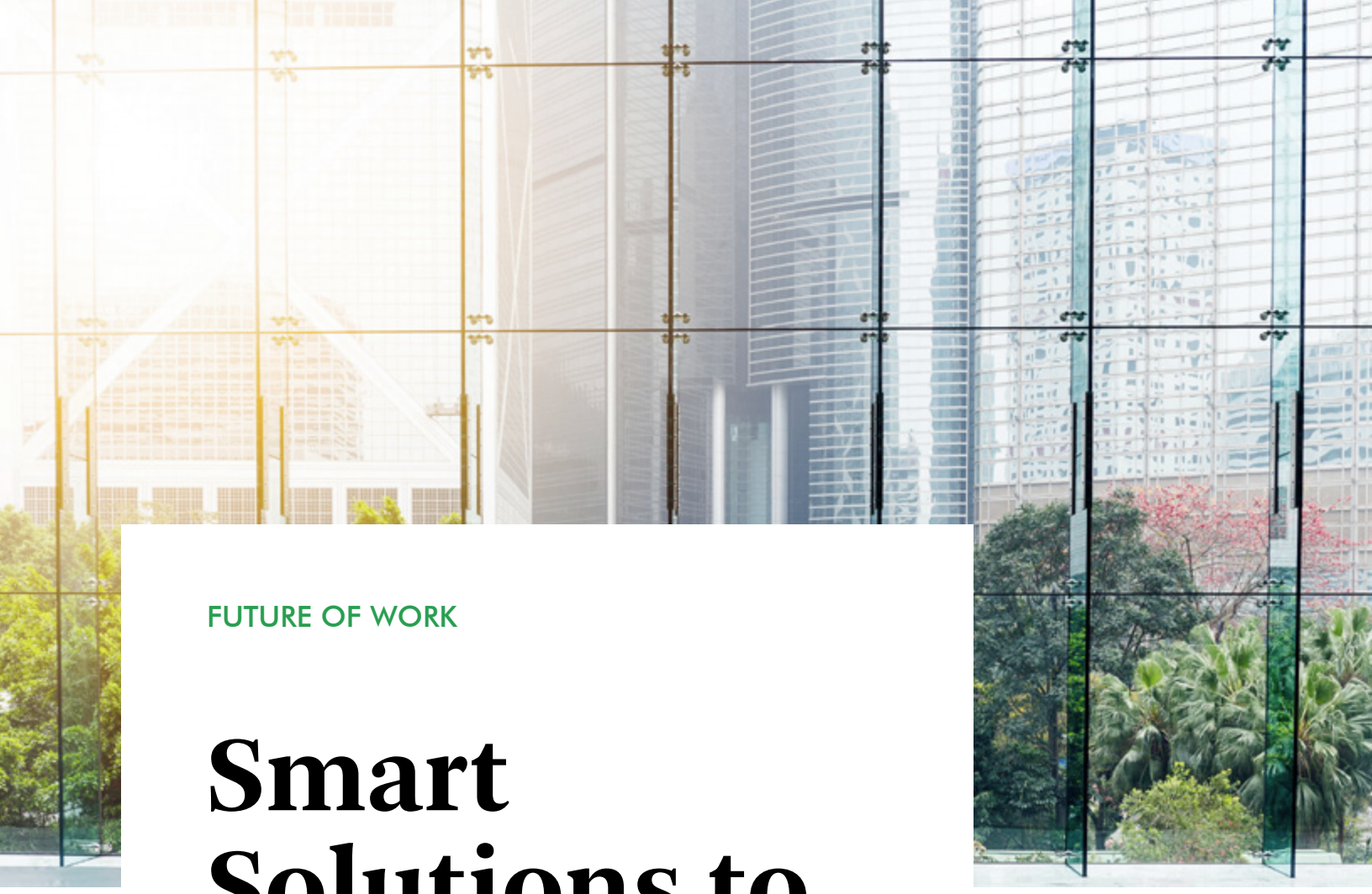
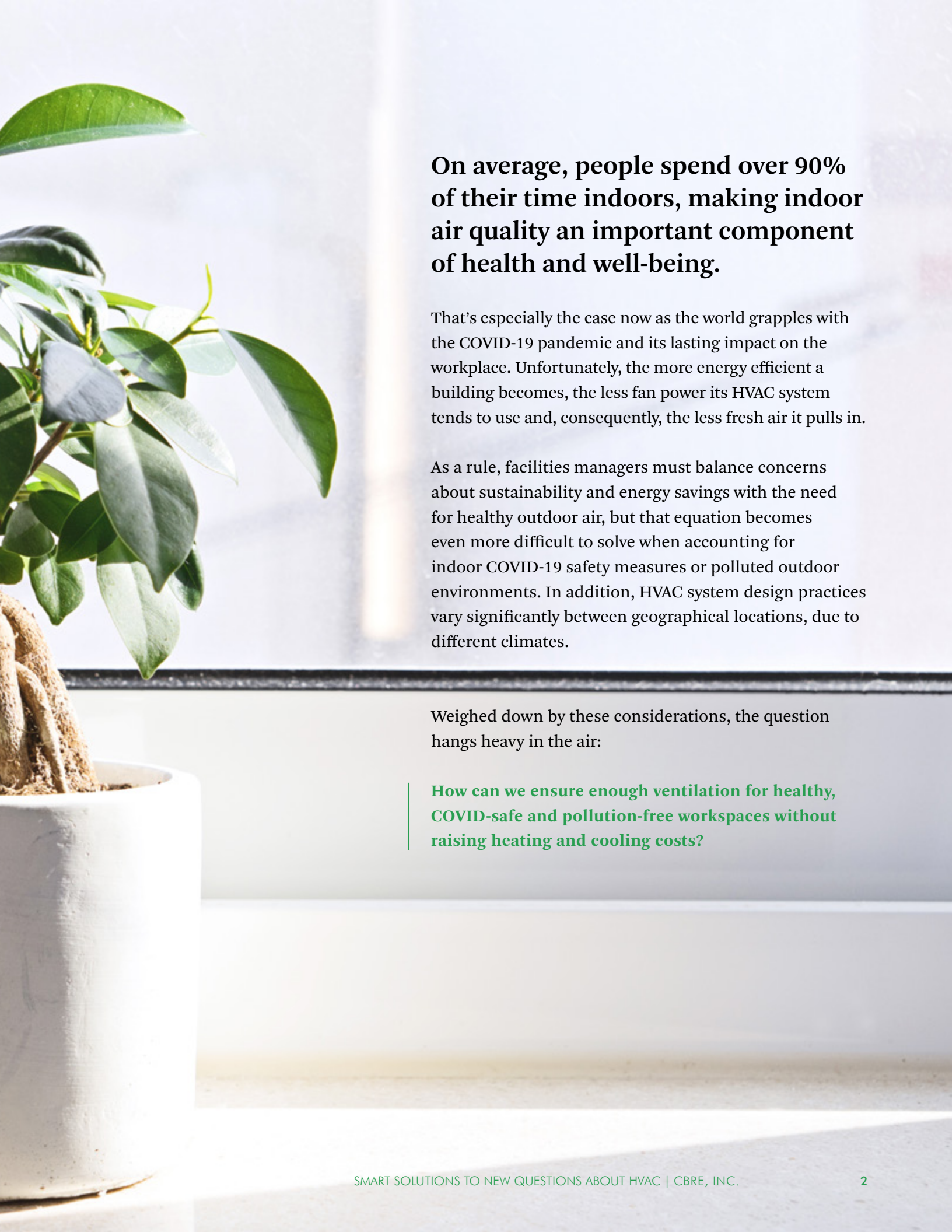


FUTURE OF WORK

Smart Solutions to New Questions About HVAC

By Antonio Lemos, Ernie Jur

CBRE



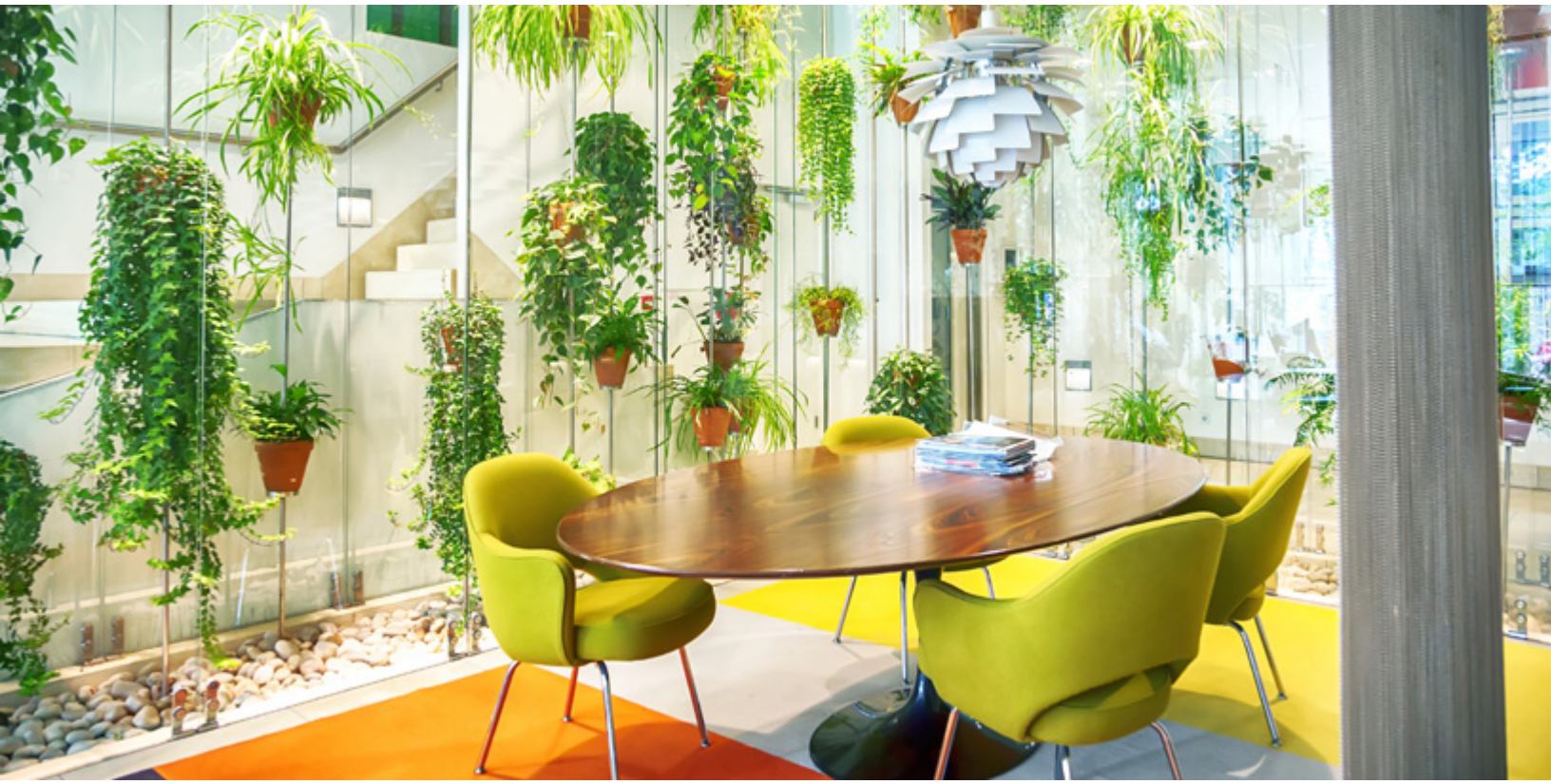
On average, people spend over 90% of their time indoors, making indoor air quality an important component of health and well-being.

That's especially the case now as the world grapples with the COVID-19 pandemic and its lasting impact on the workplace. Unfortunately, the more energy efficient a building becomes, the less fan power its HVAC system tends to use and, consequently, the less fresh air it pulls in.

As a rule, facilities managers must balance concerns about sustainability and energy savings with the need for healthy outdoor air, but that equation becomes even more difficult to solve when accounting for indoor COVID-19 safety measures or polluted outdoor environments. In addition, HVAC system design practices vary significantly between geographical locations, due to different climates.

Weighed down by these considerations, the question hangs heavy in the air:

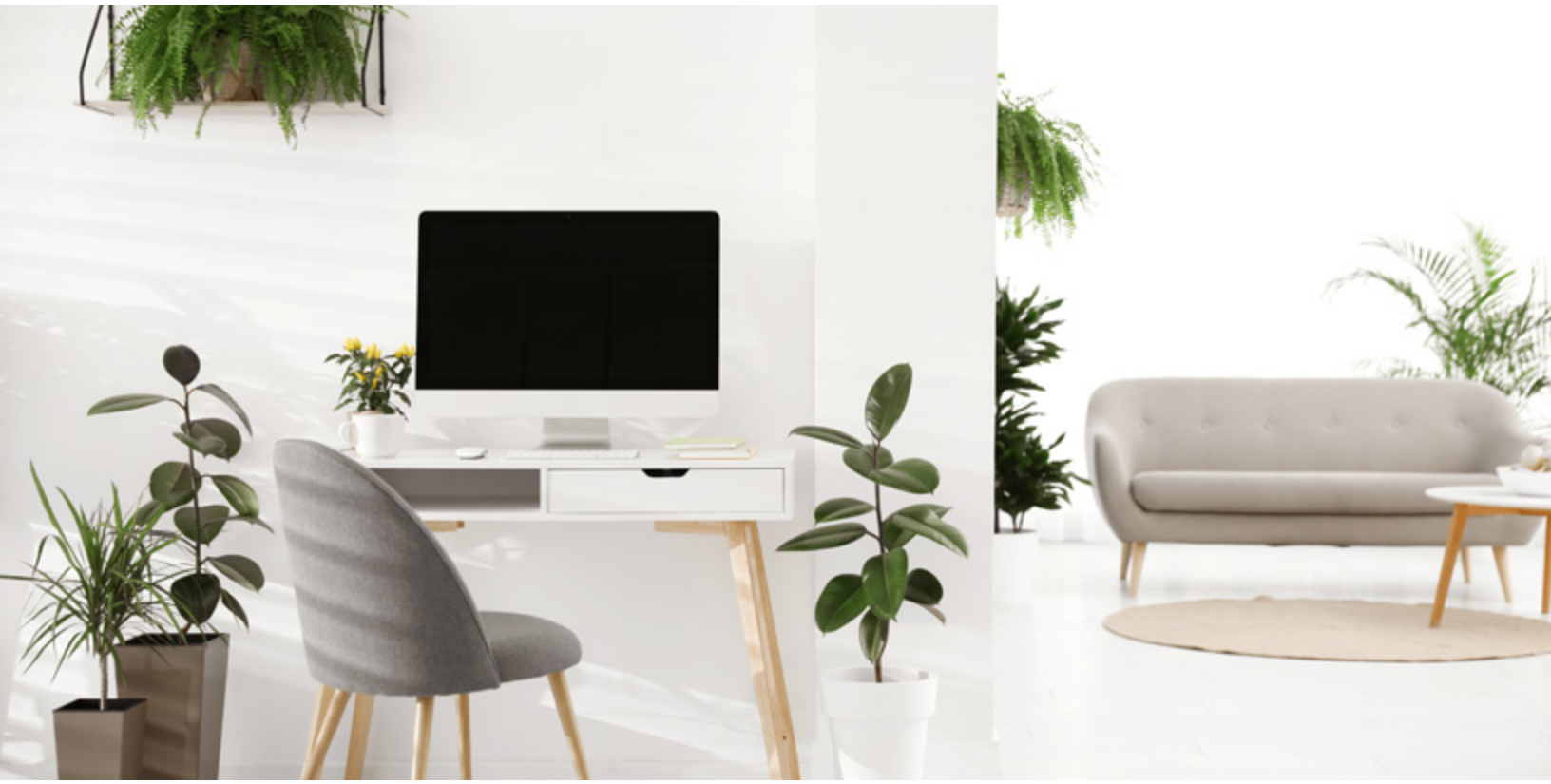
> **How can we ensure enough ventilation for healthy, COVID-safe and pollution-free workspaces without raising heating and cooling costs?**



Intelligent Decisions: A Starting Point

Intelligent decisions about the design and operation of HVAC systems set us on the path to overcoming these challenges. Upgrading the ventilation systems with high efficiency filters will help address concerns related to air quality and COVID safety.

Over the past decade, manufacturers have developed more efficient technology that reduces maintenance and energy consumption, such as electronically commutated (EC) fans for central air handling units and inverter drives for pumps. Those innovations are now being coupled with smart control systems, which respond to real-time data received via sensors. Smart systems like these enable precise control of the quality and comfort of the indoor environment.



Data as a Critical Element

Air quality sensor technology

has advanced rapidly, with new products hitting the market on a seemingly daily basis, which leads to faster and more reliable collection of real-time data.

Data functions as a critical element in the evolving world of HVAC systems, enabling us to gain a detailed understanding of how a building's ventilation system has performed before taking the right steps toward creating healthier environments.

Air quality sensor technology has advanced rapidly, with new products hitting the market on a seemingly daily basis, which leads to faster and more reliable collection of real-time data. Cloud technology and the IoT (Internet of Things) make accessing and using this data easier. Certification bodies such as RESET create data-driven standards for monitoring air quality to ensure the maintenance of healthy environments in commercial and residential properties.

Smart Buildings Provide Unique Solutions

Smart building technology has also evolved in significant ways and will soon become commonplace throughout the built environment. Using this technology, Building Management Systems (BMS) can operate at peak efficiency, adjusting throughout the day to meet the needs of the building's occupants. CBRE's AssetIQ serves as one such tool that monitors energy consumption to create savings and drive down operational costs.

While air quality remains a global problem, each facility requires its own locally targeted solutions. An HVAC system that works well in sunny, humid Miami likely won't meet the needs of a facility in cold, dry Saskatoon. Our global engineering teams can provide engineering design advice and air quality services such as CBRE Breathe, thereby crafting holistic solutions that fit each facility's unique characteristics.

Adoption Makes a Big Impact for Our Clients

Our client saw a dramatic

93%

improvement in the Air Quality Index of their indoor air.

CBRE's Engineering Design team recently assisted a client concerned about the well-being of their occupants at a site in New Delhi, one of the most polluted cities in the world. To complete that project, we analyzed a year's worth of indoor air quality data and reviewed the building design to understand the performance of their existing HVAC systems. Then, in a collaborative effort that engaged both CBRE's Engineering and Global Workplace Solutions (GWS) Enterprise teams in London as well as CBRE India's Project Management teams, we retrofitted and modified the building's ventilation and air filtration systems. The quantifiable results speak volumes: our client saw a dramatic 93% improvement in the Air Quality Index of their indoor air.

Clients have seen expenses drop by as much as

30%

due to energy-efficient modifications.

In addition, CBRE has worked on several other HVAC retrofit projects in India to manage energy and maintenance costs. These clients have seen expenses drop by as much as 30% due to energy-efficient modifications including high-efficiency chillers, pumps, and EC fans for the air handling plant.

As a market leader, CBRE strives to stay on the forefront of technological development while also understanding the specific challenges in the different regions where we operate. For example, the recent UK National Health Service regulations regarding airborne particulates may require system modifications, which CBRE can address with best-in-industry speed, scale, and scope.

Take This with You

By leveraging data and the latest technology to create locally targeted solutions to these global facilities challenges, we can continue building and maintaining healthy workplaces attractive to both investors and occupiers.

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