

# What is Sick Building Syndrome and should I be concerned about it?



Gary Noakes, product manager at **Casella CEL**, discusses the causes and effects of Sick Building Syndrome and the best way to either avoid or deal with them

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**T**he term Sick Building Syndrome (SBS) is used to describe situations in which building occupants experience acute negative physical and mental effects that appear to be linked to time spent in a contaminated area when no specific illness or cause can be identified.

The World Health Organisation (WHO) now has SBS as a medical condition where the symptoms are only present in the workplace and decline when outside the building.

Over the past few decades more people are now aware of and suffer from adverse health effects due to exposure to chemicals and contaminants in everyday life. We all spend over 90% of our time inside buildings and increase in Sick Building Syndrome related problems have been linked to the increasing use of air conditioned 'enclosed' buildings.

## What are these symptoms?

Some of the symptoms associated with SBS include: headaches, eye, nose or throat irritation, dry mucous membranes, dry skin, frequent nasal symptoms, breathing difficulties, abnormal taste sensation, distorted sense of smell, tiredness, dizziness, lack of concentration and nausea to name but a few! The diagnosis of SBS would also be supported by the presence of colleagues within the same environ-

ment also experiencing such symptoms with the same temporal pattern. The common fundamental issue is that all the symptoms improve after leaving the building.

## What causes it?

Chemical pollutants both inside and outside the building. These include traffic particulates and fumes, sources of Volatile Organic Compounds (VOC's) indoors from adhesives, deodorants and perfumes, carpets and upholstery, ozone from electronic devices such as computers, printers, dusts and aerosols from man-made fibres, paper, carbon dioxide from respiration; all can be a cause of irritation. Research has also found that metabolic gases emitted from molds and fungi may be a significant source of airborne VOCs that can cause indoor air-quality problems. Temperature and humidity are very important parameters and rapid changes in any of these parameters can also trigger symptoms of ill health.

Bacteria, pollen and mould are also becoming more prevalent as these can breed and increase in air conditioning units, causing a variety of health problems such as allergies and infections.

## Does it concern me?

While it is an individual responsibility to prevent air pollution indoors, deci-

sion-makers in the building and energy sectors have pertinent roles to play. Many factors influence indoor air quality, including the design, construction, equipment, operation and maintenance of buildings or other indoor spaces, as well as outdoor air quality and the occupants' preferences or activities. All facilities and building service managers bear responsibility for healthy indoor air and the protection of the health of its occupants, and these are already laid down in legislation; namely the Health & Safety at Work Regulations and the Control of substances Hazardous to Health (COSHH) regulations.

Every building manager should also be very concerned because of the social and financial implications to the company. Recent studies estimate that rates of absenteeism and loss of production cost UK industry in the region of £500 million. The major cost to industry is through increased sick leave and associated loss of production.

Sickness costs most companies 1% of their turnover. There can also be considerable energy/plant running cost savings made, together with the associated management time savings by operating and monitoring internal thermal, gaseous and particulate environments regularly and correctly.

## How can you prevent it?

Adequate ventilation is a very simple way of minimising the effects and potential build up of contaminants. A well maintained HVAC system should draw in external air and control the temperature and humidity of the air supplied to occupants, and this should be supplied at a rate of 5-8 L/sec per person.

A policy of purchasing low solvent level products could also be adopted, which could reduce emissions of volatile organic compounds omitted from pressed wood furniture manufactured for example, from MDF or as emissions from printers and photocopiers.

Care should also be taken when altering the internal designs of the

workspaces, the number of occupants or the internal structural and furniture arrangements. Although overall ventilation rate may be adequate, small changes will alter the airflow patterns and may result in uneven distribution of this 'fresh' air.

Even in so called 'smart' buildings, there have been many examples of situations where many individuals experience problems due to build up of toxins whilst the overall air supplied appears sufficient to the facilities manager.

#### **Instrumentation and remedies**

The first point of call in identifying possible causes is to undertake a full IAQ survey. A full range of instrumentation is available ranging from simple hand-held units to comprehensive data logging long-term sampling systems.

The Casella CEL Microtherm Indoor Air Quality instrument is an example of the latter and is used by building/facility managers for undertaking medium to long term monitoring and recording of indoor air quality and thermal environments such as storage facilities, factories, office or general workplace environments.

By carrying out simple, regular monitoring of the thermal and gaseous environments in the workplace using

the Microtherm Indoor Air Quality unit, employers can help identify problem air quality zones and help to comply with the relevant legislation including the Health & Safety At Work regulations and COSHH.

Control of the thermal and lux levels will all lead to optimal working environments. Regular routine monitoring of the local workplace environments is essential to ensure these conditions are maintained, and a preventative strategy is preferable to a reactive one taking place once symptoms and complaints start to arise. Any remedial action required must be implemented immediately.

There are many other benefits to maintaining good working environments. Some of the most important of these are the issues of corporate responsibility (CSR) and sustainability issues.

All tiers of management should ensure that all materials used and procedures in place ensure that the company is doing all it can to contribute to local and global sustainability.

The achievement of a healthy indoor environment can help address company environmental and ecological goals, make considerable energy savings, as well as help prevent both long and short term effects on human



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health. The necessary respect and care for indoor environments will also affect the global environment. 'Think globally, act locally' applies to all facilities and building management strategies.

Improved working environments will help the employees, raise levels of productivity and morale as well as make a major contribution towards reducing the carbon footprint of the company overall.

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