Sick Building Syndrome…..Prevention, always better than the cure

Managing and maintaining healthy building conditions play an integral role in minimizing occupational risk, liability, and sustaining a company’s overall performance and reputation. In addition, healthy buildings contribute to employee well-being, health, and productivity in the workplace. In Trinidad and Tobago, we are hearing an increased number of reports and complaints where occupants are experiencing health issues because of the workspace or building they occupy, resulting in increased employee absenteeism, a decrease in productivity, and eventually, in some cases, to a shut-down of operations. Therefore, the condition of your building is paramount to the continuity and profitability of your business operations.

Unhealthy building conditions can contribute to a number of Building Related Illnesses (BRI) also commonly referred to as Sick Building Syndrome (SBS).

What exactly is SBS?
Sick Building Syndrome (SBS) is a term used when occupants experience acute health symptoms and discomfort in a building usually due to poor Indoor Air Quality (IAQ). Although more prevalent in office and commercial environments, it has also in rare cases, been reported in residential buildings. The symptoms of SBS are non-specific, but are usually associated to the amount of time spent in a building and this repeated exposure being the primary cause. SBS symptoms can be localised, i.e. only affecting occupants of a particular room or floor, or they can be widespread, affecting occupants of an entire building.

What causes SBS?
Most causes of SBS are typically linked to poor Indoor Air Quality (IAQ) and are due to one or more of the following:

  - Poorly maintained HVAC Systems i.e. dirty coils and filters.
  - Some buildings are designed more airtight to improve energy efficiency; this may reduce the ventilation rate (fresh-air exchange) affecting the health and comfort of workers occupying the building. It should be noted however, that in most warm climate countries, buildings (especially the older constructed ones) have not focused on being as air-tight, and therefore this has had a positive impact on the ventilation rate, but a negative one, on energy conservation.
  - Overcrowding of rooms/offices where fresh-air is in greater demand, but in some cases lesser in supply.
- Chemical contaminants from indoor sources
  - Volatile organic compounds (VOC) brought about by adhesives, upholstery, carpet, photocopiers, manufactured wood products, pesticides, cleaning agents etc.
  - Synthetic fragrances in personal care products or in cleaning and maintenance products can also contribute to air contamination.

- Chemical contaminants from outdoor sources
  - Pollutants from motor vehicle exhaust, plumbing vents and building exhausts (bathrooms and kitchens) can enter the building through poorly located air intake vents, windows, and air openings.

- Biological contaminants
  - Mold, pollen, fungus, bacteria, viruses can breed in stagnant water or persistent damp areas that has accumulated in drainpipes, ducts, ceilings, insulation, carpets, and upholstery. For example: water spilling on carpets near a coffee station/water cooler/kitchenette, or recurring leaks on ceiling tiles or walls may create a build-up of mold over time.
  - Insect, rodent and bird droppings.

SBS has also been referenced in areas such as:

- Electromagnetic radiation
  - Extensive wiring without proper grounding creating high magnetic fields which allegedly have been linked to cancer

- Psychological factors
  - Excessive work stress or dissatisfaction
  - Poor communication

- Poor lighting conditions; absence of daylight

- Bad acoustics

- Poor ergonomics

- Humidity, Moisture, Dampness, Thermal Comfort

**What are the symptoms of SBS?**

There are numerous symptoms associated with SBS and can include any one or a combination of the following: headache, dizziness, nausea, eye, nose or throat irritation, dry cough, dry or itching skin, difficulty in concentration, fatigue, sensitivity to odours, hoarseness of voice, allergies, cold, flu-like symptoms, and increased respiratory problems/asthma attacks. Please note that these symptoms are also very common in everyday life, and as such the challenge is to be able to link the symptom(s) to a potential source in the building. It is therefore strongly recommended in the event SBS is suspected, that a carefully planned and executed inspection
and audit of the facility be done by a reputable professional to determine if the building is a likely cause.

**How can SBS be controlled and managed?**

Usually we tend to be reactive more than proactive. Only after there has been a series of complaints and/or noticeable increase in absenteeism do we start investigating probable causes. SBS may be identified by first conducting an indoor air quality (IAQ) test, evaluating compliance to the Occupational Health and Safety (OSH) act, performing a building and systems condition assessment and reviewing the preventative operations and maintenance standards for the building in question.

**What preventative measures can we implement to protect ourselves?**

1. Try to identify, then remove all indoor pollution sources.
2. Carry out a comprehensive inspection/audit on the building to ensure the condition is satisfactory both from an operational and physical standpoint, paying close attention to the building’s age, use, condition, maintenance program (past and present), occupancy history, internal and external environmental factors, and any complaints received and/or symptoms experienced by occupants of the building. Carry out annual inspections thereafter.
3. Ensure there is routine preventative maintenance on all systems and an effective cleaning program in place.
4. Ensure you have a properly maintained and functioning HVAC (Air-conditioning) System. This can be further enhanced by introducing ultraviolet (UV) lamps into the air-handlers to help treat biological pollutants, and installing HEPA filters to remove mechanical pollutants.
5. Use indoor plants as a natural air-filter. Plants clean our air naturally, regulate humidity, eliminate toxins and filter chemicals. Be careful however, with the use of pesticides and overwatering which can counter act the benefits. So choose your plants and your plant contractor very carefully!
6. Consider air-purifying devices. There are many on the (international) market and can run less than $100 USD and upwards of $600 USD. This will entirely depend on your coverage (square footage) and budget.
7. Last but not least, educate yourself and hire a professional. Information and know-how allows you to be better prepared to make intelligent decisions.

This article by no means is intended to provide the full extent to which SBS could affect your organization, or your professional or even personal life, it is however intended to provide some insight to probable causes and a methodology towards resolving should SBS be suspected. Notwithstanding, the preventative method still stands as the best approach!