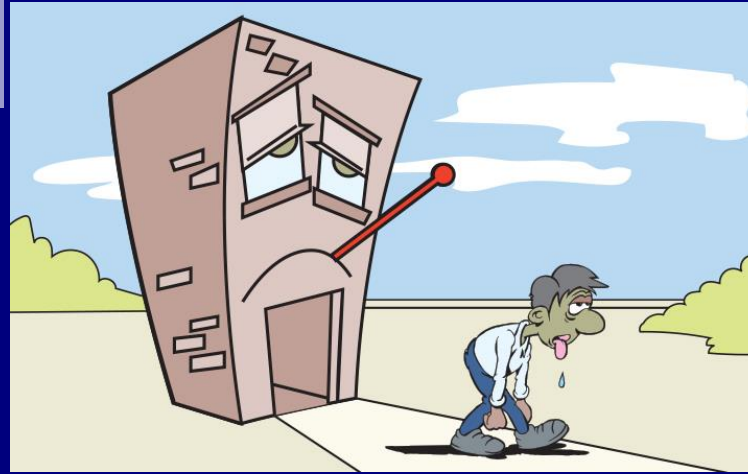


Sick Building Syndrome: Causes, Prevention & Cures for Organizations



Presented by

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Working Definitions



- Sick Building Syndrome (**SBS**)
- Building Related Illness (**BRI**)
- Indoor Air Quality (**IAQ**)
- Acceptable Air

Sick Building Syndrome (SBS)



“The term "sick building syndrome" (SBS) is used to describe situations in which building occupants experience **acute health and comfort effects** that appear to be linked to time spent in a building, **but no specific illness or cause can be identified.**

(MedicineNet.com)

Sick Building Syndrome (SBS)



“A set of **symptoms related to chemical, particulate or biological exposure** that cannot be related to a specific cause, but are alleviated when the occupant leaves the building.”

(Health Canada)

Building Related Illness (**BRI**)



“A **specific illness** with a **known cause** that is a result of exposure to an indoor agent”

(Health Canada)

Indoor Air Quality (IAQ)



“The **physical, chemical and biological characteristics of indoor air** in non-residential workplaces with no internal industrial processes or operations, which can affect the comfort or health of the occupant”

(Health Canada)

Acceptable Air



Acceptable Air is “air in which there are **no known contaminants at harmful concentrations** as determined by cognizant authorities and with which a substantial majority (80% or more) of the **people exposed do not express dissatisfaction**”

(ASHRAE)

CAUSES

of Sick Building Syndrome



Primary Causes

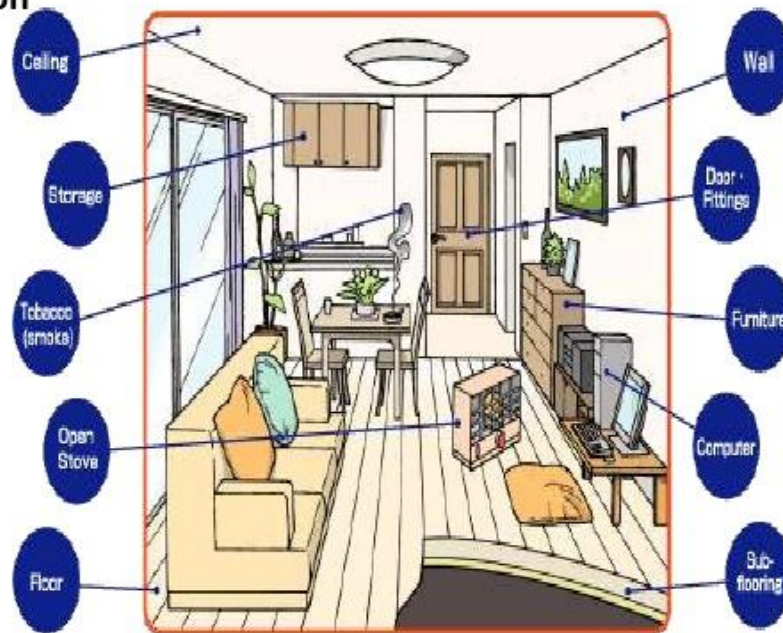
Sick Building Syndrome – Primary Causes

➔ • Inadequate Ventilation

➔ • Chemical Contamination from Indoor sources

➔ • Chemical Contamination from Outdoor sources

➔ • Biological Contaminants



IAQ related causes of SBS:

- inadequate ventilation
 - air being recycled with **NO external air** intake
 - air stagnation (stale) due to **insufficient external air** intake
- deteriorating fiberglass duct liners
- poor or NO air filtration

IAQ related causes of SBS:

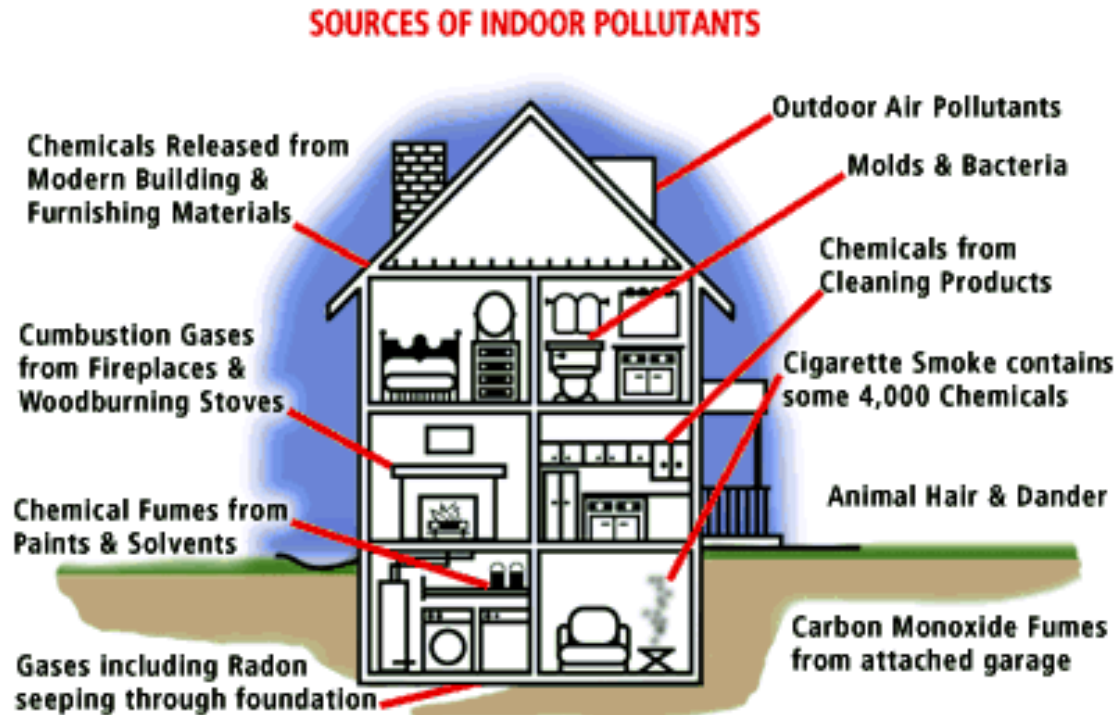
- chemical contaminants from indoor sources
 - out-gassing of building materials
 - out-gassing of decorative finishes
 - photocopiers & laser printers
 - stored items (archived items)
 - cleaning products
 - AC servicing products
 - perfumes, colognes, lotions and other personal care products, etc.

IAQ related causes of SBS:

- chemical contaminants from outdoor sources
 - vehicular exhaust
 - industrial processes emissions
 - Smoke from burning of garbage
 - spray painting vapours (e.g. from auto-body repairs or furniture operations)

IAQ related causes of SBS:

Chemical contaminants (pollutants)



IAQ related causes of SBS:

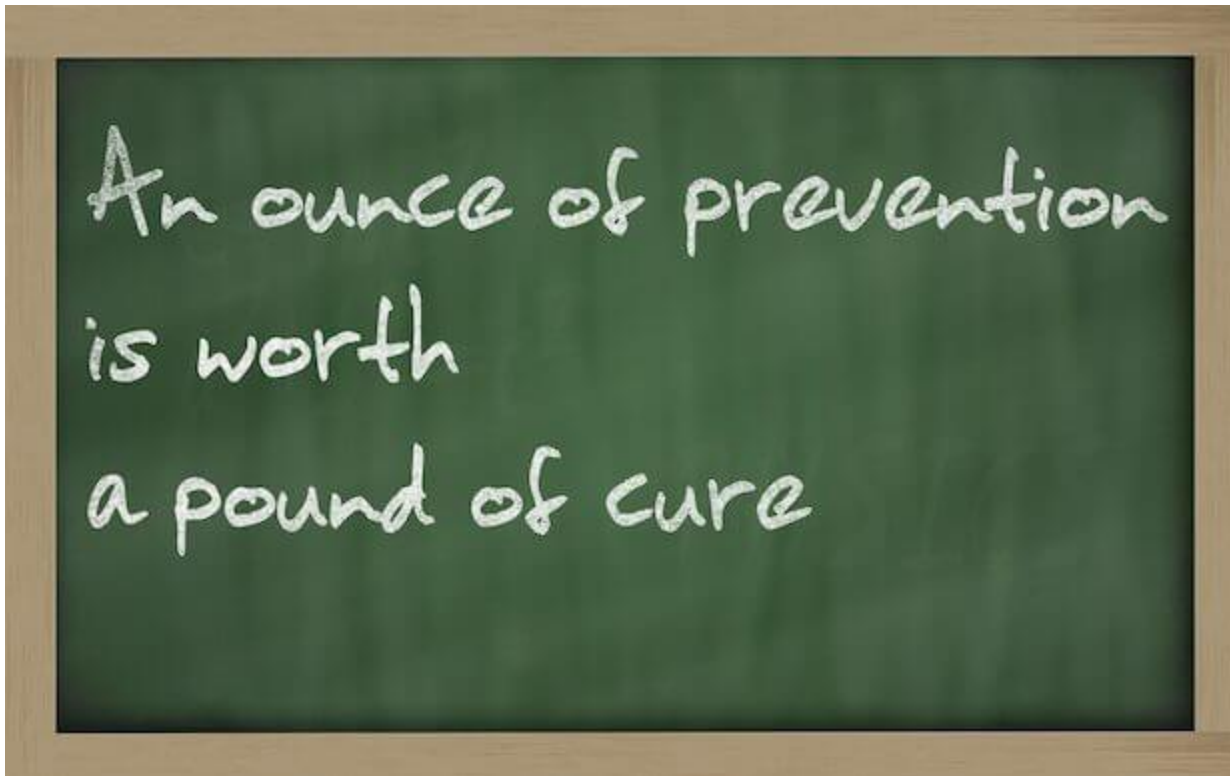
- Biological contamination via indoor proliferation or harbouring of organisms
 - mould (fungi) & bacteria
 - allergen (dust mite, cockroach, bird, bat, etc.)
- Distribution of biological agents via personnel
 - viruses
 - bacteria

NON IAQ related causes of SBS:

- Inadequate lighting
- Noise (excessive or nuisance)
- Electromagnetic energies
- Poor workstation design (ergonomics)
- Work overload (burnout & stress)
- Work underload (boredom & demotivated)
- Poor interpersonal relationships and poor communication

PREVENTION

of Sick Building Syndrome





Preventative measures

- Avoid having wet or high moisture materials
- Maintain RH as low as feasible (40% - 60% preferred)
- Ensure adequate ventilation (air exchange)



Preventative measures

- Perform regular HVAC maintenance
- Install efficient filters or air cleaners in HVAC systems
- Choose building and interior decorating materials carefully



Preventative measures

- Use “human friendly” cleaning and servicing products (low emissions and no fragrances)
- Vacuum regularly to remove dust
- Change out air filters every couple of months (or more, if necessary)

CURES

for Sick Building Syndrome



Corrective measures

- Base corrective action on **Inspection Results & Empirical Data** by commission professional IAQ & IEQ Assessments using suitably qualified personnel
- Implement FULL (comprehensive) recommendations, not partial solutions

Corrective measures

- As an IAQ interim measure (or enhancement) deploy safe and efficient Air Purifiers
- Seek out and correct sources of moisture intrusion
- Strive for permanent fixes, not short-term stop-gap measures

Corrective measures

- Update computer monitors and other display systems
- Review lighting (quality & intensity), noise sources & workstation design, and address as deemed necessary
- Encourage feedback from employees and **treat it with seriousness!**

Thank You.



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