



Engineering Sciences Section – 2008

C29 Multidisciplinary Symposium on Sick Building Syndrome

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After attending this presentation, attendees will be able to recognize the causes of Sick Building Syndrome (SBS), describe the signs and symptoms office workers experience, identify the most common genus and species of mold in contaminated buildings, and summarize risk management steps to minimize the occurrence of SBS.

This presentation will contribute to the audience's understanding of the health hazards associated with SBS, and provide those forensic scientists with minimal training in biology and mycology with the knowledge required to interact with the toxicology, medical, engineering, and legal professions, all of whom play an interdependent role in diagnosing, ameliorating, treating and resolving disputes involving SBS.

Sick Building Syndrome (SBS) is no joke. Ask those homeowners who survived Hurricane Katrina in New Orleans who returned to their barely remaining homes to find the interior walls covered with patches of black, ugly fungus, *Stachybotrus chartarum* (chartarum for paper, because this mold grows on the paper covering the plaster panels or panels of dry wall through- out the house). *Stachybotrus chartarum* may also be called *Stachybotrus atra*. SBS is actually a misnomer; it was coined in the 1970s by British physician Tony Pickering, MD, and the expression caught on. It is the people who work in the building who get sick, not the building.

SBS is usually caused in a building due to increased humidity (>55%) which provides an excellent environment for fungi and different types of microbiologic and biological species to proliferate. As these "biological babies" grow, they produce a variety of chemicals. Sometimes, the first thing workers notice is a peculiar odor, and visitors to an infested home, may ask, "Do you have a dog or a cat?" as derivatives of ammonia permeate the air with an odor reminiscent of urine.

Exposed individuals often experience irritation of the eyes, nose and throat, and a dry cough. Dry, itchy skin, headache, nausea, and difficulty concentrating are also frequently reported. Many people feel better when they go home or work in another part of the building, only to find their symptoms recurring when they return to the affected area again. SBS is distinguished from Building Related Illness (BRI) in that the source of the health hazard originates within the building. In BRI, a co-worker with the flu (or in the worst case, Legionnaire's Disease) infects other people, so the source of the health problems were an infected person who should have stayed home from work while contagious, and not a health problem that originated within the building.

According to a NIOSH study of 529 sites, SBS was caused by the following sources at the indicated frequencies: Inadequate Ventilation (52%), Chemical Contamination from indoor sources (17%), Chemical Contamination from outdoor sources (11%), Micro/Biological Contamination (5%), Building Fabric (3%), and Unknown (12%).

SBS can be prevented by: keeping temperatures between 68-79°F, maintaining humidity at 45-50%, providing adequate ventilation (at least 15 cfm), and designing building exhausts remote from air intake vents, garages, and dumpsters. The presence of mold usually indicates poor building maintenance. Also, be cognizant of furniture that emits Volatile Organic Compounds (VOCs), use of cleaning agents, kerosene heaters and floor polishers that are used after hours.

Sick Building Syndrome, Mold, Mycotoxins