

ENVIRONMENTAL HOME

Sick buildings can affect everyone differently

By Dan Howard

For TRIB TOTAL MEDIA

We all know the philosophical question, "If a tree falls in a forest and no one is around to hear it, does it make a sound?"

The question surrounding sick buildings is pretty much the same — If nobody is sick in the building, is it a sick building?

Health reactions to a building environment are dependent upon the occupants. When it comes to potential environmental problems, we are each the sum of our genetics, health history and current health. Buildings don't get sick, people do.

It's like Mr. Rogers of "Mr. Rogers Neighborhood" would say at the end of every show, "There's no person in the whole world like you." That also goes for your health and factors that can influence your health.

As an example, Legionella has a 5-percent infection rate. That means 95 out of 100 occupants of a building harboring the bacteria will not get Legionnaires Disease. That could mean that the building might never be identified as a "sick building."

What causes sickness?

It can be mold, off-gassing from the thousands of new and untested products we put into homes, combustion or industrial gasses or the myriad of bacteria, viruses and other contagions that can be brought into any building. That complexity of possible causes of illness complicated by individual occupant reactions to different exposures makes environmental investigations "CSI for buildings".

Not a new problem

We shouldn't ignore the old issues of centuries ago. World history includes plagues and diseases that almost wiped out major segments of past civilizations.

We can only eliminate environmental hazards that can affect people when we identify them. We



need to put up our hands and demand assessment and testing when health reactions lead us to suspect them.

We now know that water problems can be a source of mold. Sewage can harbor the diseases that devastated civilizations. We have developed an understanding about those issues, but we still often fall short in avoiding these contaminants in individual cases.

Lead is credited as a major factor in the fall of the Roman Empire, yet we have lead in the water supply of cities such as Flint, Mich., and Pittsburgh. Imported dark-colored plastic toys, decorations, mascara, china dishes and crayons are still often sources of toxic lead.

Asbestos was a miracle product as fire retardant, and we still have it in our homes, schools and businesses. Old plaster, popcorn ceilings, suspended ceilings and imported eye liner are a few of the examples of asbestos that can still be a deadly health risk that an average person can't identify by appearance.

New hazards for today

Two of the most significant impact items on environmental health

today are new products and tighter building envelopes.

The bad news is that many of the building products and contents are made of oil processed in one way or another. Manufacturing synthetic materials is a complicated process. An improper mix, wrong temperature, impurities in a reagent, the wrong length of time in a vat and the reactions can result in toxin production. In other cases, the produced materials and chemicals are not stable or break down chemically over time. Substitute materials can be used as solvents or as the products themselves and create indoor air toxins.

For a great example of what can happen in everyday indoor air, review the MSDS for your favorite air freshener. It will be a page-long list of organic chemicals in a toxic formaldehyde solution that are plugged into an outlet and heated. The heat breaks down those chemicals into more chemicals.

We also deal with leftover chemicals from prior occupants of a building. These can range from the accidental spill to leftover contamination from drug activity in a home. The source of indoor pollution can be spills or burying of toxic

materials or pesticide on farmland that happened decades before the building was constructed.

There are countless cleaners and pesticides that people and businesses will store that can spill or off-gas from containers. A change of janitorial service in an adjacent office can introduce toxic concentrated chemical cleaners that are used to reduce labor costs. In another common scenario, the improper mix of incompatible chemicals can create a toxic environment.

There are also a host of toxins produced from poorly vented or unvented furnaces, hot water tanks or other fossil-fueled appliances.

Another major potential impact on indoor health is EMF (electromagnetic radiation). Cellphones, electronic devices and microwave devices in everything from cooking to communication systems might affect some individual's health.

Solutions keep people in mind

It begins with a history of the building, its occupants, their sensitivities and the very ground the building sets on. The former site of an old dump or factory could be a plan of multi-million-dollar

homes today.

The next step is evaluating the construction materials and methods of the building with consideration of materials that might have been brought into the building envelope.

Then, you should develop and implement a testing plan to identify and verify the type, location and quantity of a contaminant. The factors that could allow the recurrence of a contamination need to be identified, and avoiding those factors should be incorporated in any remediation.

In the case of possible communicable biological contagions in the building, those should be identified and the exposure risks and methods of transmission evaluated and included in the testing and remediation plan. Total disinfection is easy to achieve with modern equipment.

All these steps are critical to developing and implementing a plan to correct the contamination, if possible.

In summary, investigate, discover, verify by testing, remediate and confirm success of remediation or disinfection work to provide a healthy environment for building occupants.

The bottom line is that each of us can react to ANY of the contaminants mentioned here. Every building has some of these, and we do not know if the contaminants present in your building are the ones that can make you, or the people you care about, sick.

The best plan to avoid Sick Building Syndrome is to minimize the number of contaminants in the property to reduce the chance of a building becoming a sick building for people you care about.

Go to envirospect.com/ PeoplePartofSBS for links, sources and additional information.

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