

Indiana IAQ

Issue 4

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About Indiana IAQ:

A new kind of newsletter that addresses the concerns of everyone interested in Indoor Air Quality (IAQ) in Indiana. From the many questions and concerns received this newsletter and the ones to follow are developed from specific concerns. Information is collected and applied this way to the articles published.

Who can write in? *Anyone!* Contractors, mitigation technicians, restoration and remediation technicians, real estate professionals, banks, doctors, lawyers, insurance professionals, investors, anyone with an interest in IAQ.

To submit an idea for an article, write to:

IndianaIAQ@solutionsiec.com.

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After a Fire & Smoke Damage

There are many types of fire and smoke damages, ranging from outdoor sources, indoor sources, total loss of the structure, to localized damage like a kitchen fire. In all cases there are things that can be harmful and a proper procedure to follow in order to restore your home or office after a fire or smoke damage.

During a fire, heat, smoke, and the depletion of oxygen interact, exerting themselves as serious hazards. These hazards can be in the form of a solid, liquid, gas or vapor, and can include particulate matter, gases, humidity, and other bio-aerosols.

Some of the gases associated with a fire or smoke damage include carbon dioxide, carbon monoxide,

nitrogen oxides, sulphuric oxides, and Polycyclic Aromatic Hydrocarbons (PAHs). Many of these gases can be colorless and odorless; for this reason, many of them can go unnoticed during the initial fire and smoke damage, the cleaning of the structure, and its restoration.

The particulate matter associated with fire and smoke damages are a combination of living (bio-aerosols) and non-living matter and is a mixture of solid particles and liquid droplets found in the air. Some of the particulate matter is large enough to be seen, like the large deposits of soot and ash you see settled onto your furniture and building

components, while other particulate matter are so small they can be seen only with the help of an electron microscope.

Of the living particulate matter microorganisms (like mold and bacteria), their fragments and toxins, as well as their particulate waste products can be of



concern.

Health consequences of exposure vary with the size...

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Is It Safe to Go Home?

As a first responder to a fire, such as fire department personnel, or as a secondary responder, like an insurance professional, or fire or water restoration contractor, you may be asked this question: How should you respond? In most cases, you simply do not know how to respond responsibly. Of course we

have no trouble making intelligent decisions concerning the safety risks that are obvious and can be seen with the naked eye. We may say "use some common sense". Is there a danger of a cave-in from above, or of falling through the floor? Has the fire department

said it is safe to enter? Did they check the air for dangerous VOC's? Is that all there is to worry about? The simple answer is, not at all. As a matter of fact, the visible dangers are probably the least of your worries.

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Styrene Testing in the Workplace and Your Home

The US Agency for Toxic Substances and Disease Registry (ATSDR) states that human exposure to high levels of styrene may induce adverse nervous system effects.

Styrene, also known as vinyl benzene, as well as numerous other names, is an organic compound found in many manufacturing processes. Under normal conditions, this aromatic hydrocarbon is an oily liquid. It evaporates easily and has a sweet smell.

Styrene is an important synthetic material used in the making of rubber, plastic, insulation, fiberglass, pipes, automobile and boat parts, food containers and carpet backing. However exposure to high levels of styrene may induce adverse nervous system effects.

These health effects include changes in color vision, tiredness, feeling drunk, slowed reaction time, concentration problems or balance problems. Styrene is also classified as an ototoxin -- "ear poison" -- which are substances that can impair hearing. Like any chemical hazard, they can be ingested, absorbed or inhaled into the body.

Studies have shown that excessive exposure to styrene on its own is enough to induce hearing loss. More severe effects can result when ototoxin exposure is combined with noise exposure. In fact, some researchers indicate that even when noise and chemicals are at permissible exposure levels, the impact of a combined exposure can do more damage than a higher exposure to either hazard alone. The result can be mild hearing loss, tinnitus (ringing in the ears) or total deafness.

Styrene is also classified as a possible hu-

man carcinogen by the International Agency for Research on Cancer (IARC). The EPA has described styrene as "a suspected carcinogen" and "a suspected toxin to the gastrointestinal, kidney, and respiratory systems, among others."

EMSL Analytical, a leading environmental testing laboratory, has many years of experience analyzing styrene in the workplace, home and throughout the environment using EPA, NIOSH, and OSHA methodologies.

Author: EMSL Analytical, Inc. is a nationwide, full service, analytical testing laboratory network providing Asbestos, Mold, Indoor Air Quality, Microbiological, Environmental, Chemical, Forensic, Materials, Industrial Hygiene and Mechanical Testing services. Visit EMSL at www.emsl.com.

Is It Safe to Go Home?

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As an Indoor Air Quality Professional, I have been very cautious for years about particulate matter in the indoor environment after a fire, or during the dry out process after a water damage. After a water damage, blowers are set up to drive the water out of the absorbent materials and into the air. Millions of particles that have settled out of the air and are lying about, somewhat harmlessly, are now airborne and can take months to settle back down. Some particles are so light it takes over a year for them to fall eight feet. These particles are usually a mixture of dust mite fecal matter, heavy metals like lead or mercury, mycotoxins from mold spores, skin cells, pollen, pesticides, herbicides tracked in from lawn care, urine and fecal matter from pets, and just plain dirt. This is just a short list of what would be in nearly every home. Also, if the relative humidity is over 70%, water particles can be a pollutant on their own, affecting our ability to process oxygen in the air. I am not suggesting that we should not use blowers to dry, but you must account for these conditions and take a proactive approach. After a fire, the air is filled to

capacity with a toxic soup of poison vapors and dangerous levels of particles. We may open a window and turn on a fan, but if you can smell smoke, it is filled with these things. The Environmental Protection Agency states that inhaling these particles can cause heart attacks and death. There is also a list of other diseases and illnesses, but why bother with them when I think death cuts right to the chase?

I have at least three times in my career warned elderly clients not to be working in their fire damaged homes, sorting their contents etc. Despite my pleading with them to stay out, they refused and they were dead in a week with heart failure. I personally do not believe it was just their time to go. After a fire, some of the smoke particles are so small they are inhaled and go directly into the blood stream! Many will cause asthma attacks and other respiratory problems. So what should we do? How should we advise the people who look to us and our experience for answers? It is a concerted

condition. Meaning we all have a part to play. Our olfactory senses are given to us for a reason. If it stinks, whether it is milk, meat, or air, stinky is bad and we should know to steer clear. Anyone who will spend more than a few minutes in a fire-damaged site should take precautions to protect their lungs. A properly fitted respirator should be worn until everyone is reasonably sure that dilution, containment, or filtration has been successfully accomplished. No one should return to their home to live until the air and all surfaces are properly cleaned. **This also applies to homes and businesses adjacent to fire damaged structures or what may be considered un-effected rooms or areas of the same building.** It is our responsibility as professionals to either be able to give accurate information, or guide the public to the proper advisor. In this case, a specialist trained in indoor air quality. The existing staff working on a project should also be trained in proper control and consideration of these issues. Public awareness is our best route.

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After a Fire & Smoke Damage

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... mass, concentration, and other contaminants which interact with one another. The United States Environmental Protection Agency (EPA) has found that particles small enough to be inhaled (respirable) at concentrations of 250 to 350 micrograms (one microgram is 0.000001 gram or 1 gram is 1,000,000 micrograms) per meter (39.37 inches) increase respiratory symptoms in compromised individuals.

As with any damaged environment, understanding the condition of that environment is key in providing for the health and safety of all of the occupants, as well as developing a scope of work that will restore the structure to a safe and secure status. Sometimes the damage can extend far beyond what you can see. For example, during the California wild fires many structures

miles away from the physical fire experienced smoke, char, ash and indoor air quality damage unseen to the naked eye. Obviously, cleaning of the visible areas of soot and fire damage is not enough to secure the structure's integrity and indoor air quality.

Today there are tests that can be performed by qualified investigators (like SOLUTIONS IEC) to insure that the total damage has been assessed, a complete scope of work is generated, and health and safety issues are addressed prior to cleaning and restoration; equally, those same tests are available for a post-restoration verification inspection that brings scientifically-sound closure to any restoration process.

For further information on fire and

smoke damages we recommend books like "Fire & Smoke: Understanding the Hazards" by the National Academy Press and the American Red Cross' document "Picking Up the Pieces After a Fire".

For more information on how an independent indoor environmental professional can help you contact us at the number on the back of this newsletter.

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OSHA Releases Guidance for Silica Control in Construction

In our last issue we discussed a little about silica in the workplace. Since that article the Occupational Safety and Health Administration (OSHA) has released new guidelines for silica control during construction. This new publication is meant to assist employers in providing a safe and healthy workplace for workers and can be utilized in construction application to reduce potential exposure for all occupants of any indoor environment.

Silica, which is known to cause silicosis,

a serious lung disease, can be found in many construction materials, such as brick, mortar, concrete, slate, dimensional stone, tile, sand used for blasting, asphalt filler, soils, some wall board joint compounds, paint, plaster, caulking, putty, and more. "This document provides information on the effectiveness of various engineering control approaches (ways and means used to control dust generation and the distribution of silica containing dust into the air and associated systems) for several kinds of construction op-

erations and equipment, and contains recommendations for work practices and respiratory protection, as appropriate."

Two of a few methods discussed in this guideline include wet cutting during construction and the use of vacuum dust collection. Wet cutting is used to weigh down the dust particulate when using sanders, hand-held saws, and jackhammers. This can be an effective way to control dust distribution into the air and the building air conditioning systems. (read more on page 4)

Is It Safe to Go Home?

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The IICRC should make indoor air quality a more important part of all of their training. Graduates of their training programs should be more aware of the hazards associated with IAQ and how it relates to their certification in regard to their clients health.

When you are on a site after a fire or a water damage consider the air and don't take it lightly. Probably a completely healthy adult would have little to worry

"visible dangers are... the least of your worries"

about, but if you are elderly, still growing young lungs, are pregnant, have any heart disease, or respiratory problems, you are at great risk and I think that category will apply to most of us.

Larry Conley is a thirty year veteran of the cleaning industry and owns SnLco a full service restoration company in Muncie, Indiana. Mr. Conley may be contacted at 765-836-5005 or Larryconley@snlco.com, IICRC certifications, CCMT, UFCT, JWR, JTCT, JFSR, WRT, CRT, FSRT, ASD, CCT, OCT, CRRT, HST, AMRS, Master Water Restorer, Master Fire and Smoke Restorer, Master Textile Cleaner, (Other certifications in other organizations not listed.)



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SOLUTIONS IEC is a truly experienced business that, with over seventeen years of mitigation, restoration, remediation and hygiene practices, can assist you in determining the Category and Condition of the damaged structure; develop a protocol that is real and specific to the structure; and can provide expertise beyond just an inspector’s role. Our staff of professionals have been recognized in both indoor environmental consulting (Council-certified Indoor Environmental Consultants) and microbial remediation supervision (Council-certified Microbial Remediation Supervisors) - two of the most prestigious awards in the industry today! Don’t let poor IAQ take control of your life. Empower yourself with SOLUTIONS—Indoor Environmental Consulting—today!

Serving the Indiana and Illinois states!



OSHA Releases Guidance for Silica Control in Construction

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Vacuum dust collection systems are systems where silica containing dust is drawn away from the worker and collected in a filtered dust collection chamber.

Why should you be concerned with this if you are not working in construction? Well, if you are planning on remodeling your home or office any time, or may have to hire a restorer to repair your home or office after a disaster, you may have reason to be concerned. Improper practices can lead to airborne particulate that creates poor indoor air quality and an environment you won’t want to be exposed. The dissemination of dust debris during construction can create surface

and airborne contamination long after the remodeling or restoration is completed—and the work doesn’t have to be performed indoors to contaminate

“Visible dust contains large particles that are easy to see. The tiny, respirable-sized articles (those that can get into the deep lung) containing silica pose the greatest hazard and are not visible. Most dust-generating construction activities produce a mixture of visible and respirable particles.

Do use visible dust as a general guide for improving dust suppression efforts. If you see visible dust being generated, emissions of respirable silica are probably too high. Measures that control tool-generated dust at the source usually reduce *all* types of particle emissions, including respirable particles.

Do not rely *only* on visible dust to assess the extent of the silica hazard. There may be airborne respirable dust present that is not visible to the naked eye.” - OSHA

the indoor environment!

Work performed near openings, trafficking occupants, air in-takes are just

a few ways outdoor work practices can infiltrate the indoor air to pollute it.

If you suspect or are concerned with silica contamination in your home or office or just want some added assurance that these problems are not an issue during your next construction project, make sure to hire OSHA trained professionals and discuss inspection and monitoring techniques with your local indoor environmental consultant.

To view OSHA’s document go to:
www.osha.gov/Publications/3362silica-exposures.pdf.

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