

# Indiana IAQ

January/February 2012

## About Indiana IAQ:

A newsletter that addresses the concerns of everyone interested in Indoor Air Quality (IAQ). 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](mailto:IndianaIAQ@solutionsiec.com).

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## Why Are Air Cleaning Devices Needed on Mold Remediation Clean-ups?

This is a question that we are often asked about. Building owners want to know why remediation companies want to charge for them, as do some insurance adjusters; remediation professionals want to know when they need to use them, and why; and, almost everyone is questioning the effectiveness of their use. In this article we will take an abbreviated look into the micro-environment meant to be addressed by these devices and why that micro-environment is so important to address during mold remediation. We will look at this from two perspectives:

1. One of the ways we will look at this is from an Occupational Safety and Health (OSH) stand-point of regulation. While this will not stand as an all-encompassing discussion, it will highlight some basic reasons employers will be interested in making sure that they provide these devices as a part of their employee's safety and health plan.
2. A more general view of safety and health will be looked at that does not distinguish between the remediator or any other occupant within a known contaminated-area.

But, first, let's take a look at what an air cleaning device, or as it is often called in the remediation industry (1) an Air Filtration Device (AFD) or (2) Negative Air Machine (NAM), is suppose to do:

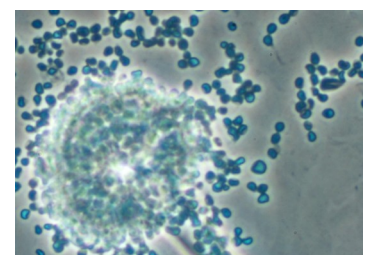
Basically, an AFD and a NAM are the same thing, set up to exfiltrate air differently. Generally, both devices have an in-take chamber, where air is brought into the device for cleaning. The air is taken in and processed through a number of filters, meant to remove airborne particles (like dust, mold fragments and other debris common to mold-infested and remediated environments). Once the air has passed through these filters it leaves the device through an exfiltration chamber; this is where the use-difference comes in:



- An Air Filtration Device (AFD) exhausts the processed air back into the work-area (or abatement zone). This creates and/or maintains positive pressure inside the abatement area during operation.
- A Negative Air Machine (NAM) exhausts the air through a port of some sort and out of the abatement area. This creates negative pressure inside the abatement area.



Both techniques have their proper place and time of use. For the purpose of this article we will not be discussing that; rather, we will focus on why they are used in general, as air cleaners during mold remediation.



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## Military Families Struggle with Mold and Related Health Problems in Military Housing

Families living in off-base military housing in Norfolk, VA are suffering with health problems due to mold exposure in their homes, reports WTKR news network.

Two mothers explained to the news channel that they and their children experienced symptoms that only began after moving into their homes. One woman remarked that what had appeared to be a cold became painful sinus, ear, and upper respiratory infections. When she found signs of water damage in her home, she began to suspect a connection between her illnesses and mold. The most damning evidence came when a wall of her home was torn down; immediately afterwards, she vomited and her eyes swelled shut in a

severe reaction to the mold spores that were released into the air.

After the news story broke, more families in the Norfolk complex and other military housing units in Virginia, all owned by the same company, came forward with additional complaints about health problems brought on by their homes' mold. One woman anguished over her children's deteriorating health when three doctors all attributed their symptoms to mold exposure.

"This story underscores how hazardous mold can be to people's health, and it is particularly sad that this happened to those who sacrifice for our country," states Joseph Frasca, Senior VP at EMSL Analytical, Inc. "EMSL, one of the nation's leading mold testing laborato-

ries, understands that families need accurate results quickly, so they can begin the remediation process and remove what is making them sick."

About the author:

EMSL Analytical Inc. is a nationally recognized and locally focused provider of consumer product, environmental, industrial hygiene, food and materials testing services to professionals. The company has an extensive list of accreditations from leading organizations as well as state and federal regulating bodies including, but not limited to AIHA IHLAP, AIHA EMLAP, AIHA ELLAP, A2LA, NVLAP, CDC Elite, CPSC (Consumer Product Safety Commission), CA ELAP, NY ELAP, TX Department of State Health Services, and multiple other state accrediting agencies. Please visit our website for a complete listing of accreditations at [www.emsl.com](http://www.emsl.com).

## Why Are Air Cleaning Devices Needed on Mold Remediation Clean-ups?

(CONTINUED FROM PAGE 1)

As I mentioned earlier, these air cleaning devices are used by employers for a number of reasons, one of which includes regulatory requirements established in order to protect the health and safety of their employees. In the case of mold remediation, the largest enforcer of these regulations is the Occupational Safety and Health Administration (OSHA).

Under OSHA's employee protection standards, employers must comply if there is or may reasonably be predicted employee exposure to a violative condition. The term "zone of danger" is often used, referring to "that area surrounding the violative condition that presents the danger to employees which the standard is intended to prevent." (RGM Const. Co., 17 BNA OSHC 1229, 1234 (Rev. Comm'n 1995)) The OSH Commission adopted this "reasonably predictable exposure" test after courts rejected or suggested disapproval of the Commission's early requirement that OSHA prove actual exposure.

The U.S. Environmental Protection Agency (EPA) is not constrained by the

same principles as OSHA (namely, the Occupational Safety and Health Act); therefore, they can apply criminal laws in a wide range of circumstances, including some (such as those laid out in their lead laws) that touch on occupational situations. So, it is very important that all of your contractors are aware of (1) known hazards, (2) potential hazards, and (3) trained in how to deal with those hazards in a way that (1) protects workers in the work place, (2) protects those around the work place and/or are involved (such as multi-employer worksites) in the remediation/restoration processes, and (3) protects the environment.

*"Zone of danger... area surrounding the violative condition that presents danger to employees which the standard is intended to prevent."*

- OSHA

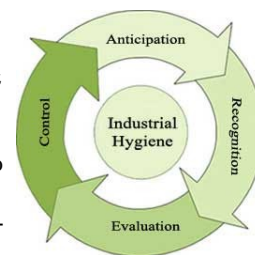
How does this relate to the use of air cleaning devices? One needs to understand what these devices are or constitute: *an engineering control*. You see, there are three lines of defense against

health hazards in the workplace:

- Engineering controls
- Administrative controls or work-practice controls
- Personal protective equipment

As you can read in this OSHA document (<http://www.osha.gov/SLTC/etools/safetyhealth/comp3.html>) engineering controls are the preference, in fact *the first preference*, in the OSHA recognized line of defense. Why?

Because they are the most effective; they "to the extent feasible . . . eliminate hazards or reduce exposure to hazards" (OSHA document just provided).



These air cleaning devices are meant to be a part of those engineering controls.

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## Why Are Air Cleaning Devices Needed on Mold Remediation Clean-ups?

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But what's the big deal, anyway? Is that what some of you are asking? Good question. As you may recall from our November 2009 issue of Indiana IAQ ([http://indiana-iaq.weebly.com/uploads/8/6/3/6/8636798/indiana\\_iaq\\_5.pdf](http://indiana-iaq.weebly.com/uploads/8/6/3/6/8636798/indiana_iaq_5.pdf)) mold can be a health hazard in three ways:

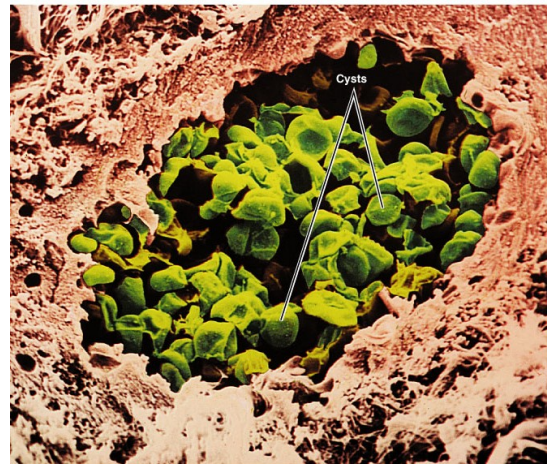
- It can be toxic (poisonous);
- It can be infectious; and/or
- It can be an allergen (trigger allergies and asthma).

Now, the word “can” in these sentences is key to note. Just because the ecology in your building is not normal or you can see mold growth does not mean you will end up poisoned or infected with some sort of mold disease; however, because these things can reasonably be understood as a potential health hazard, they have to be considered strongly in any evaluation for mold remediation. Failure to do so may compromise the efforts to protect everyone involved in a mold remediation project, especially those whose immune systems are weak or compromised.

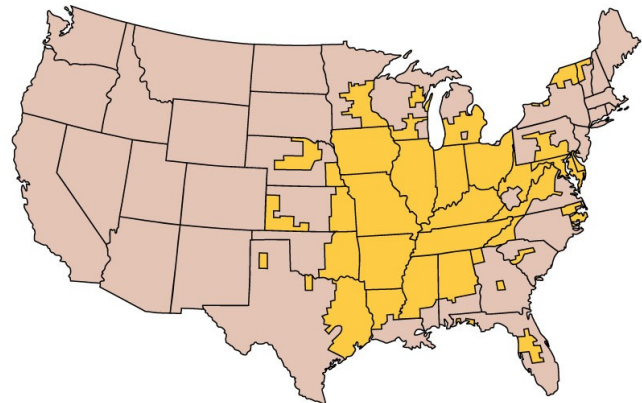
There are over 1.5 million different mold species known and, as you have discovered from regularly reading our newsletters, many are being newly discovered. Of these there are few found to be infectious. Some of those variably effecting Indiana's populations include (but are not limited to) some virulent, dimorphic fungi, like *Histoplasma capsulatum*.

Dr. Jackson Kung'u, a microbiologist who specializes in the field of mycology, describes *Histoplasma capsulatum* like this: “*Histoplasma capsulatum* is a good example of a thermally dimorphic fungus. This fungus grows in its yeast form at 37° C [99°F], but switches to mold form at 20-25°C [68-77°F]. *H. capsulatum* is found throughout the world in substrates rich in nitrates such as bird droppings, chicken manure and bat guano. It is also common in soils enriched by bird droppings. It causes a disease called *histoplasmosis*. Humans are infected by inhalation of spores in the air or carried in fine dust. In indoor environments, *H. capsulatum* is only likely to be found in old dried bird droppings, chicken manure or bat guano. When the droppings have dried, massive amounts of spores can be released, especially if the droppings are disturbed. *H. capsulatum* may cause chronic infection resulting in pneumonia, blindness, and even death. Although it is not always present, it is good to assume it is there and take the necessary precautions if handling bird droppings or guano.”

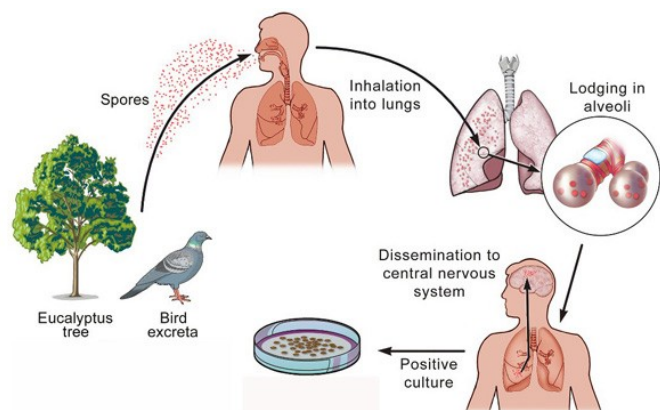
With that as our example of one of the 1.5 million mold species potentially handled during a mold remediation project, one can see why it is so important to do everything possible to protect those working in these hazardous environments and to ensure that their work includes the air quality so that re-occupancy does not compromise the health and safety of the building owners and occupants. The thing to remember is that, just like us humans, these different mold species have different life-characteristics, and, just like us humans, each



Cysts in alveolus of a monkey lung



Histoplasmosis distribution in the U.S.



one of us may relate to the mold ecology around us differently. A good analogy would be this: Do you have a friend that you just love to be around but your boyfriend, girlfriend, wife or husband cannot stand, or vice-versa? We all relate differently to other people and other life-forms. In order to secure remediation fully, the health and safety of everyone must be a component of remediation. (continued on page 4)





*“Don’t let problems with poor indoor air quality take control of your life. Empower yourself with SOLUTIONS—Indoor Environmental Consulting—today!”*

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SOLUTIONS IEC is a truly experienced business that, with over nineteen 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 indoor environmental remediation supervision (Council-certified Microbial, Moisture & Indoor Environmental Remediation Supervisors) - holding four 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—toady!



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In whatever case you find yourself, it is important to understand that these reasonably understood hazards are to be assessed and handled carefully and professionally by competent persons through the use of appropriate and adequate engineering controls, like air cleaning devices. Solutions offers consultation services after the assessment process in order to secure the proper means of air-cleaning, its maintenance, and operation—throughout the remediation project. Whoever you are and whatever your need, whether determining the ecology of fungi, determining the abatement area from non-abatement areas, or determining what equipment to use and how to maintain it for compliance, safety and health, Solutions offers a comprehensive service that addresses everyone’s needs.

*Why did we decide to offer this service?*  
 Too often we see these devices improperly utilized. You see—when using these devices sheer volume or flow velocity of

air is not enough for them to be effective. Some other things to consider include but are not limited to:

- location of contamination in relation to the AFD or NAM
- dust accumulation in relation to air flow through the device as well as the device's ability to fully filtrate the mass of contamination passing through it at that rate
- type of contamination within the work area (such as particulate, gas, fume or vapor)
- means of measuring and documenting the device's performance for proper maintenance during operation

These are all fundamental assessment requirements in all standards of care that at different times and for different reasons get overlooked on some projects.

By utilizing Solutions all materially interested parties can be assured of the operations of the air cleaning devices through cooperative establishment, maintenance, measure, and documentation.

Solutions offers one of the only peer-reviewed and peer-certified group of hygienists in the industry in order to provide the highest level of service-quality. To learn more contact our office for a free, no-obligation review of your claim, and gain the solutions you’ve been looking for.

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