

MOLD BASICS: UNDERSTANDING THE THREE CRITICAL COMPONENTS OF EVERY FUNGAL REMEDIATION PROJECT

A Common Situation

Over the last few weeks we have received numerous calls from individuals concerned about the appropriateness of mold remediation projects that do not address critical issues such as possible contamination of the HVAC system or the contents of the building. In fact, we spoke with an attorney for an individual who is reportedly suffering from serious mold-related health concerns, and he was incredulous when he found out that after a major remediation of visible fungal growth from his client's house no effort had been made to clean the rest of the structure. This lack of thoroughness was even more disturbing given that a hygienist had been involved in the project to conduct an investigation and help prepare the scope of work. This consultant's own air samples had shown elevated levels of fungal spores throughout the home, yet the official project was narrowed down specifically to the rooms with visible contamination.

In a similar vein, we received the following e-mail from someone who had heard about our organization's reputation for competency in the mold remediation field. Obviously, the remediation company's name has been extracted to protect the guilty!

I am writing you because my landlord recently engaged in mold remediation using [Company X]. I was point blank told, "We are not responsible for cleaning your belongings because they were not affected by the mold!" I know otherwise as the air tests came back reflecting high levels of mold. How can I determine if my household articles were affected or contaminated by [Company X's] mediocre professionalism or even prior to [Company X] stepping in? And is this anything you may be able to assist me with?

Understanding the Current Standard of Care for the Industry

It is disappointing to hear that any professional in the mold remediation industry would make a blatant statement about contents not being impacted in a mold contamination case without having some support for such a declaration. This approach is directly counter to the advice provided in the *Standard and Reference Guide for Professional Mold Remediation* (document S-520 written by the Institute for Inspection Cleaning and Restoration Certification [the IICRC]). In that document they discuss three conditions associated with mold remediation projects:

- Condition 1 Normal fungal ecology
- Condition 2 Areas that do not have evidence of visible fungal growth but are impacted by airborne spore deposition
- Condition 3 Areas with visible fungal growth

Obviously, it is critical to determine if contents that are in areas defined as Condition 3 or Condition 2 have been negatively impacted by the deposition of airborne spores. Typically, the fallback position is to assume that contents in Condition 3 areas are contaminated unless proven otherwise. Contents in an area designated as Condition 2 are also frequently assumed to be contaminated unless testing is conducted, although this guess is not acted on with the same frequency as it is with items in an area with visible mold.

Therefore, a remediation company that patently denies responsibility for cleaning household belonging because they were "not affected by the mold" is clearly not operating within the existing standard of care. This approach is especially risky if air samples showed elevated levels of fungal material in multiple areas of the house.

The Problem with Narrow Scopes

While it is true that many hygienists and contractors limit the scope of work, based on cost factors, and deal only with visible fungal growth, this tactic does not resolve the problem. Every mold contamination situation in a building has three distinct components that must be managed:

1. **Sources** of fungal contamination (both visible and hidden)
2. **Transport mechanisms** that allow spores to migrate from one area to another (with HVAC systems being the most important)
3. **Reservoirs** of fungal spores and fragments (carpets, contents, and many other surfaces)

Unless all three of these aspects of the fungal contamination issue are addressed, relief of symptoms by the occupants will often remain elusive.

A Simple Solution

The good news (and sad news, since it is so often ignored in the industry) is that sampling to determine if contents have been negatively impacted by mold sources can be easily conducted and is relatively inexpensive. A number of methods are straightforward enough that a layperson can collect a good sample. There are two popular techniques for determining if contamination is present outside an area with visible fungal contamination. ERMI (Environmental Relative Moldiness Index) samples involve vacuuming a measured section of carpet and having the samples analyzed using a DNA identification system. Less expensive are simple surface samples utilizing tape, which are analyzed by optical microscopy for the presence of fungal spores and fragments.

If the more cost-effective tape samples are used, a number of collection techniques are possible as long as the tape that is used is clear rather than frosted so that the captured material can be viewed through the tape. In our opinion, the simplest method for collecting such a sample is to use flexible plastic microscope slides that have a section of adhesive built in—such as a product called Bio-Tape. Bio-Tapes are easy to use and can be analyzed for the presence of fungal materials.

Criteria to Determine if Contents and HVAC Components are Contaminated

We are convinced that one of the main reasons for little effort being directed at determining whether HVAC systems or contents are contaminated is that there are few published standards, or even recommendations, regarding the interpretation of surface sample analysis data. If the laboratory provides analysis results as percentage of the surface area of the sample, then the following criteria can be used to interpret the results. This straightforward three-step interpretation process was developed by Wonder Makers in 2004 and was subsequently published in a number of industry trade journals. It has been verified to be very effective by use in thousands of cases.

Fungal Material	Usual Indication
≤ 1%	Normal fungal ecology (Condition 1)
Between 1% and 3%	Indoor environment contaminated with settled spores that were dispersed directly or indirectly (Condition 2)
≥ 3%	Indoor environment contaminated with the presence of actual mold growth and associated spores (Condition 3)
The presence of target spore types (<i>Chaetomium</i> , <i>Fusarium</i> , <i>Memnoniella</i> , <i>Stachybotrys</i> , and <i>Trichoderma</i>) at any concentration is an indication of fungal contamination.	

Addressing the Three Critical Components

Contractors and consultants both bear responsibility for understanding and communicating all of the crucial details related to mold remediation projects. If they are not reminding building owners, landlords, insurance adjusters, and occupants that a proper remediation project addresses fungal contamination sources, transport mechanisms, and reservoirs, then they are doing their clients a serious disservice. More important, they are putting individuals who occupy or visit the buildings at risk by only dealing with a part of the problem.

Finally, the legal liability of failing to address fungal contamination projects in a comprehensive manner cannot be overlooked. With more and more scientific research pointing toward a

verifiable connection between exposure to water-damaged buildings (both fungal and bacterial components) and health problems, the courts have started to take a second look at whether personal injury claims related to mold are justified. In such cases the individual or organization that presents itself as a professional in the industry but does not evaluate and address all three components of mold contamination situations can quickly become the object of a lawsuit.

About the Author

Michael A. Pinto currently serves as Chief Executive Officer of Wonder Makers Environmental, Inc. He has more than 30 years of safety and environmental experience from jobs in the private sector, the non-profit arena, and regulatory agencies. Michael is the author of five books, including *Fungal Contamination: A Comprehensive Guide for Remediation*, over 150 published articles, and 18 commercial training programs. He can be reached at map@wondermakers.com.