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Mitigation, Restoration, Remediation and the Rules of Containment Part 2

Topic: Water Damage

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When the fifth annual Water Loss Institute (WLI) Conference was held in Bellvue, Washington last fall, it attracted over 250 professionals working in water loss and restoration. The newly expanded format allowed presenters to cover specific topics in-depth and provided a foundation for each successive session.

Joe Arrigo, CR, WLS, discussed the importance of sampling and clearance testing. "There are no general standards for clearance sampling," he explained. "Every building is different, every situation is different and we must use professional judgment."

Final clearance testing levels should be based on the initial protocol designed for a specific project. Arigo said a contractor must decide up front the goal of the project. In order to set the goal for the end result, however, one needs to determine the extent of microbial contamination, establish the areas that need only localized restoration and then rule out the areas that do not need to be addressed at all.

He suggested dividing the project into work areas, isolating each one and maintaining a negative air pressure differential to clean areas. "This separates more contaminated from less contaminated, lowers the risk of cross-contamination and allows for clearance (cleaning) testing by area," Arrigo said. "It may also allow for quicker reconstruction."

As each work area passes the screening test, it can be sealed off. The advantage is that it tells a contractor if the cleaning process was adequate and how effective the crew was. Changes can be made more quickly and less expensively at this point. He recommended screening tests by work zone as the project proceeds. The purpose is to just screen the surfaces since particles in the air come from them. If a surface doesn't pass at this point, it certainly won't pass final clearance testing.

Rachel Adams of Indoor Air Management explained testing methods and which ones to use in certain circumstances.

Sampling should occur during different times of the day and can be affected by seasonal conditions. Samples are most often taken for bacteria, fungi, mycotoxins and microbial volatile organic compounds. Adams recommended starting the collection process with a building inspection, walking through the entire building and asking questions about history and other



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details. She suggested looking in HVAC/duct systems for signs of water damage, musty odors, visible growth and "active" reservoirs.

Several analytical methods can be used to provide information: microscopy, cultures, biochemicals and molecular biology. Through microscopy, one can identify recognizable fungal spores, but cannot differentiate between spores with similar traits. Cultures only work for viable fungi and bacteria. Viable spores are any spores, seeds or organisms that are alive. They may be dormant or require an essential nutrient or a host to grow. Success depends on the media selection, how the sample was collected and the incubation times/temperatures.

There are four types of surface sampling: contact plate sampling, tape sampling, swab sampling and bulk sampling. Contact plate sampling is limited to viable microorganisms (bacteria and fungi) and is used primarily for smooth surface sampling. It only provides estimates of concentrations.

Tape sampling can confirm the existence of fungal spores, but cannot provide information on species. It is used primarily for smooth surfaces and requires the services of an experienced microbiologist. Swab sampling can be used on smoother, roughened or irregular surfaces for viable bacteria and fungi. Bulk sampling requires destructive sampling and is particularly useful for wallboard, particleboard and carpeting.

Dr. Eugene Cole of DynCorp. Health Research Services, updated attendees on the use of bioluminescent adenosine triphosphate (ATP) detection methods on damaged building materials in an effort to provide contractors with a real-time test to assess levels of microbial contamination. Cole explained that ATP is a biochemical component of living organisms that produces light energy, which can be measured in light (or luminance) units. "ATP detection has historically been used for detection of total biomass in natural and waste waters, as well as the food hygiene area," said Cole.

According to Cole, laboratory results showed that increased concentrations of ATP and organisms corresponded to an increase in the luminance units and defined colony forming unit (CFU) detection limits. They also showed that the presence of intrinsic "background" levels of ATP from wood and wallboard could vary considerably. Vinyl tiles and baseboard had the highest mean luminance values, followed by upholstery and carpet, painted or finished wood, painted metal, painted wallboard and wallpaper.

Neil B. Hall, Ph.D., discussed exterior insulation and finish systems (EIFS) and the origin of moisture problems. EIFS were first developed in Europe after WW II when an energy crisis necessitated the need for an additional insulation layer on the outside of existing cement stucco walls.



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A synthetic stucco with the same expansion and contraction system as polystyrene was eventually developed and brought to the U.S. where it was put on wood frame systems instead of masonry. EIFS problems were the result of this change.

The original "barrier" EIFS were designed to keep water from penetrating synthetic stucco cladding. The second generation was developed in response to problems with water infiltration behind the weather barrier.

The damage results from water intrusion at window openings, deck attachments or roofs without flashing. In an ongoing study conducted by HUD, the leading problems are a result of:

- Using an application that is thinner than the manufacturer's recommendations
- Leaving exposed mesh at joint edges and terminations
- Sealant failure at field joints
- Cracking in V-grooves
- Cracking at openings, and
- Cracking at board joints.

Hall identified several major problems with the original EIFS products. Since manufacturers did not say EIFS could not be used below grade, when it was left below grade, water came back up into building.

The system was also designed to not let water in, so no weep systems were incorporated into the design.

The new generation allows for water to get behind the system where there are drainage grooves with a weep system at the bottom to release water. An additional vapor barrier is recommended to keep water out of the substrate systems.

Ernie Storrer of Injectidry Systems, Inc., reviewed pressure differentials in structural drying and the different drying methods. He explained that the major factors in structural drying have been temperature, air, materials, relative humidity, air movement and time. If one aspect is increased, the others can be decreased to compensate without negative consequences.

According to Joe Lstiburek of Building Science Corporation, air flows from high pressure to low. If it is moved into a space, an equal quantity must be removed to equalize the pressure. If the surface material is wet, air movement across the surface will transfer the moisture into the air.



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Storrer outlined three drying methodologies: passive, positive and negative. Passive drying involves measures that do not directly affect wet areas by moving dry air. Positive drying involves blowing air directly into interstitial spaces via air movers or other machines. Negative drying involves moving the moisture and contamination to a location where no further damage can occur.

Negative drying is effective when there is a need to control known or suspected contamination by directly outputting to a HEPA filter, when the interstitial spaces being dried are smaller and more restricted or there is a need for caution due to concerns over health in a facility (hospital, nursing home, day care) where exposure could compromise health.

It is slower under many, if not most circumstances; is not as controllable directionally and can draw moisture from unknown sources such as cracks in foundation walls or subfloors.

Positive drying works faster under most conditions, is more easily controlled and directed, and works well when speed is important.

The downside to positive drying is that what goes in, must come out (cfm in = cfm out). Moving air in the wall cavity can also disperse any debris in the space, which can be a problem if there are concerns about the health of the occupants such as in hospitals or nursing homes, day care centers, food establishments or homes with elderly or young children.

Storrer concluded that the best drying method minimizes liability and potential health issues, while maximizing drying speed. Some circumstances may dictate that speed is compromised in order to minimize the other issues, and every job should be considered individually.

Pat Harmon with the Property Loss Research Bureau (PLRB) provided an insurance industry view on microbial contamination. As the nation's largest association of property and casualty insurance companies, PLRB members hold 70 percent of the total market share. He explained that he spends much of his time answering questions related to claims coverage. At this point in time, there is a lot of concern about mold and mildew, but no specifics from the industry on how to handle it. "We realize that there is not enough money to throw at the problem," said Harmon, "especially if it's left untreated and grows to colossal proportions."

From a coverage perspective, he said that if the mold and mildew just happen to be there as a problem without a causal event, the remediation procedure is generally not being covered. While this is currently untested in the courts, Harmon said the insurance industry is at the beginning of the litigation cycle, which is similar to asbestos cases 20 years ago.



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"If we choose to ignore it, we know it will only get worse," said Harmon. "What we have is a failure to communicate. Between adjusters and restorers, there are workable solutions. We need to work together and try to find solutions. The real enemy is the loss."

Harmon also outlined PLRB's new affiliate membership program, which will be open to insurance adjusters and restoration contractors. PLRB is designing an easy-to-use website that will provide a Claims Marketplace - an efficient means of locating the expertise adjusters need, when and where they need it, in order to quickly resolve problem claims at a competitive price and with quality results.

The program features include:

- Cross platform communication tools
- FRP — Request for Proposal — can be sent to everyone who agrees to do small repairs of a certain nature in a specified area. Responses can be faxed or e-mailed back.
- Service provider websites — Everyone who subscribes will have a web page — company history, philosophy, what you do, photo, references, how to get in touch with you, logos and association memberships. Will link to ASCR's website and their information. PLRB will verify the information submitted through the trade association.
- The "Claims Yellow Pages" — will allow an adjuster to select a service category, fill out a form, review and compare responses, and contact the chosen business. Everything is point and click and happens in real time.

PLRB is also creating a technical reference for property adjusters with graphics; information on core issues; measuring information on doors, windows and fences; as well as information on finished carpentry; a glossary of terms; and installation and estimating specifics. Users will also be able to export pages out of the website to adjusters.

Ed Cross, Esq., of the Law Offices of Edward H. Cross & Associates, discussed disclosures and disclaimers. He began his presentation with his own disclaimer, stating that the information presented was not intended to be legal advice for a particular situation and referring individuals to an attorney for information related to specific cases.

Disclosure is a tort issue involving a civil wrong, and is a legal action brought by one citizen against another. In the IAQ and water damage industries, Cross said it mainly involves a failure to warn. Disclosure is one of the best ways to defend against the tort of negligence.



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"You can be sued for negligence if you fall below the standard of care or breach your duty to perform according to the standard of care, and that breach causes damage to someone," explained Cross. "A failure to warn can be a breach of that duty."

Cross recommends two types of disclosures for his clients, depending on whether they are involved in water damage restoration or mold remediation. A pre-printed "Answers to Frequently Asked Questions" or "A Client's Right to Know" can contain critical disclosure information for the clients.

Disclaimers are a contract issue, not a tort or negligence issue. "A written contract is a document to create evidence of an agreement," said Cross. "It needs to be fair and meaningful." The Court will look to see if it is an elusory contract without consideration or whether there is a fair exchange. If there are too many disclaimers, then there is no contract.

Only an immaterial part of the exchange can be waived without consideration. A waiver is unilateral and can be withdrawn by one person. Consideration is not necessary as long as the waiver is immaterial.

A modification is a bi-lateral change that affects both parties and can only be withdrawn by mutual agreement. It also requires consideration in the contract.

Cross outlined three steps he employs in executing a contract. First he reviews each paragraph with the client, item by item, in plain English. Then he gives it to the client and insists that he/she read every word of the agreement. Finally, he provides them with an opportunity to ask questions and discuss terms before signing.

The advantage of using this approach is that it enables the contractor to testify five years later on what happened, even if he can't remember the particulars of the project. This makes it much harder for a client to fight in court because there has been a 'meeting of the minds.'

In situations where someone has told a restoration contractor not to perform a recommended service, Cross advised the use of a refusal of recommendations and a release of liability form. "We're trying to defend a negligence claim by way of disclosure and building up evidence for the defense of the assumption of risk," explained Cross. A contractor can defend against this if he can show that an individual knowingly, willingly and voluntarily exposed himself to the risk.

Cross cautioned against having so many different contract forms that it reads like *War and Peace*. If a client is overloaded with information there is no meeting of the minds.



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A contractor needs to make sure that the source of the water intrusion is corrected and might consider including something in the contract to that effect. Cross recommended the use of verbiage similar to the following:

"As indicated in *discussions with Contractor's representatives*, mold and microbial contamination is the result of water damage, and continued water intrusion will encourage additional microbial growth, which can be a health hazard. The correction of the problem that led to the original water intrusion is crucial to this process. **OWNER** warrants and represents that the water intrusion has been stopped. This contract provides for mold remediation services, but not the correction of water intrusion problems. **OWNER** releases **CONTRACTOR** and hereby waives any and all claims against **CONTRACTOR** arising from water intrusion that occurs after the date of the original loss which these services were intended to address. **Owner initial:**
_____."

If they don't sign the refusal of recommendations and release of liability, Cross advised sending them a letter confirming the information.

He also recommended that a contractor separate himself from the industrial hygienist. He advised against writing your own mediation protocol. "You want the owners to hire their own hygienist and you will just adhere to their protocol," he explained.

Cross also provided suggested verbiage for this point in the contract:

"**OWNER**, by and through its independent industrial hygienists and/or environmental consultants, has performed or will perform a thorough environmental investigation (including clearance sampling) and will specify the methods and extent of remediation. The attached Scope of Work is simply an estimate of the costs of performing according to those methods. **OWNER** hereby releases **CONTRACTOR** and its employees, officers and successors from any liability for errors or omissions made in the preparation of the protocol and the remediation methods. **CONTRACTOR** makes no representations or warranties as to whether those methods will be effective or appropriate. However, **CONTRACTOR does** take responsibility to faithfully and timely perform those methods in a workmanlike manner according to industry standards."

The goals of the contract are to secure your right to payment, design the scope of the work and exclude any pre-existing conditions, and disclose any hazards and conditions. The terms in the contract should be relatively balanced. The forms needed to address specific issues should be included, but they should not be too cumbersome. At the conclusion of the project, Cross recommended that the contractor continue to do walk throughs until it has been established that everything appears to have been cleaned up.



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The final session of the conference involved a Q&A session panel comprised of Gene Cole, Rachel Adams, Jim Holland, Ed Cross, Phil Rosebrook, Jr., Frank Headon, Neal Hall, Ernie Storrer and Pat Harmon, and moderated by former WLI president, Ron Reese, CR, WLS.

A joint conference sponsored by the Water Loss Institute and the National Institute of Disaster Restoration addressing environmental and remediation issues will be held on September 21-23, 2001 in Chicago, Ill. For additional information on the conference, contact ASCR International at (410) 729-9900.

Patricia L. Harman is the editor of Cleaning & Restoration. Part 1 of the Water Loss Conference recap appeared in the February 2001 issue of Cleaning & Restoration.