

mold™

October-December 2005

Volume 2 | Issue 4

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on Page 47

& MOISTURE MANAGEMENT MAGAZINE
The Magazine for Moisture Prevention and Remediation

CATASTROPHIC KATRINA

CLEANUP CREWS RECOUNT THEIR
FIRST DAYS AFTER KATRINA

Also Inside:
FIRST ANNUAL
INDUSTRY
BUYER'S GUIDE



A Publication of Key Communications, Inc.

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features



Catastrophe Response

Hurricane Katrina changed the lives of thousands of individuals along the Gulf Coast, but for mold industry professionals, the clean-up has been business as usual.



2006 Industry Buyer's Guide

Search for the products and services you need and where to find them in our first annual Industry Buyer's Guide.



Reducing Risks from Mold and IAQ Exposure

New training by the Environmental Education Foundation, based on a contract with the Environmental Protection Agency, is beginning to promote EPA's new guidelines for managing indoor environmental quality, with a closer look at mold.



On the cover

Remediation workers from around the world went to work on the Gulf Coast shortly after Hurricane Katrina hit on August 29. For more, see *Catastrophe Response* on page 26.

AP Photo/Kevork Djansezian



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Superstitious Threes

Every now and then you get a reminder about why the service you provide is a valuable one. As they say, “things come in threes,” and since the last **Moldmag** issue came out, I’ve had three reminders about the importance of the mold industry.

The first reminder, for me, came one morning when I arrived at work expecting a flood zone.

This expectation wasn’t a result of a hurricane but of an unfortunate accident. Our managing editor, Kim White, had come into the office on Labor Day to catch up with work and discovered the damage.

“When I opened the door, my first thought was, we had the carpets cleaned,” Kim said. “By the time I got to my office, I was ankle deep in water.”

Keeping her cool, Kim found the source of the running water: a water fountain jammed into the on position when furniture temporarily shoved against it had shifted over the weekend. Her next move was to flip through the phonebook and search for a water damage restoration company.

Within hours, Nexters of Woodbridge, Va., had arrived on the scene. By Tuesday morning, the halls were a noisy zone of fans and dehumidifiers.

The second reminder came at our impromptu staff meeting later that morning. As we discussed what could have been a worst case scenario and changes we would make to prevent future water damage, feeble comparisons were made to Hurricane Katrina, which had blown through just days before.

I tried to picture coming into work to instead see our office being drained of water filled with traces of sewage; the records of our magazines soggy lumps in filing cabinets.

The image came too easy, particularly after the descriptions of what many of you have had to contend with in Louisiana, Mississippi and Alabama (see *Catastrophe Response* on page 26). I well knew how relieved we’d been when the last of our blue dehumidifiers were removed from the hall—and imagined how thankful those Gulf Coast residents would be when similar dehumidifiers finally arrived.

I said things come in threes, didn’t I? Well, the final reminder of the importance of our industry came in October when I attended IAQA-AmIAQ-IESO 2005, the annual meeting and exposition of the newly unified American Indoor Air Quality Council, Indoor Air Quality Association and Indoor Environmental Standards Organization (see *Remediation News* on page 20). Many attendees discussed their experiences in the Gulf Coast states.

They also discussed coming industry trends, new products, the age-old question of standards and the recent unification of these three important associations. While the kind comments **Moldmag** received from attendees was heartening for us, I can’t help thinking how much more validating was the idea of being part of such an important industry as it grows into an even more widely appreciated—and highly respected—profession.

Megan Headley, editor
Moldmag 



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Before the Floods

In 2004, Rain-Driven Water Marked As First Priority

by Dean Lewis

Dean Lewis is the manager of product certification for the American Architectural Manufacturers Association (AAMA).

Before Katrina and Rita devastated the Gulf Coast, the 2004 hurricane season had gone into the record books, at least as far as beleaguered Florida was concerned. The cataloging of 2004's aftermath was scarcely being completed before new onslaughts took shape out at sea. As a result, much activity is now underway to learn how building components can better withstand the ravages of wind and water that these storms visit upon the burgeoning populations lining our Atlantic and Gulf Coasts.

From Wind to Water

Initially, efforts concentrated on stronger wind protection. For example, the new Florida Building Code enacted in 2000 set forth minimum requirements for windows that use either hurricane shutters or impact-resistant glass that holds together even when shattered by wind-borne debris.

However, one of the lessons learned initially in 2004 was that water penetration from heavy wind-

driven rains occurred in more cases than acceptable, leading to interior water and mold damage.

In response to the 2004 hurricanes, the Florida Building Commission (FBC) established a hurricane research advisory committee (HRAC) composed of researchers, engineers, academics, material suppliers, builders, code officials and the insurance industry.

FEMA contributed its comprehensive report, FEMA 490, *Summary on Building Performance—2004 Hurricane Season*, which included window design recommendations:

- “The window industry should re-evaluate current test procedures to better represent dynamic wind loading produced by hurricane and tropical storm winds.”
- “[The window industry should] develop window assemblies that are more wind-driven rain water-resistant.”

In a separate report on Hurricane Charley, FEMA asked that “the window/curtainwall industry re-evaluate the test pressures that are currently used to assess resistance to wind-driven rain. Although this has not been an issue in the past, as building performance is improved and water infiltration due to failed envelopes is

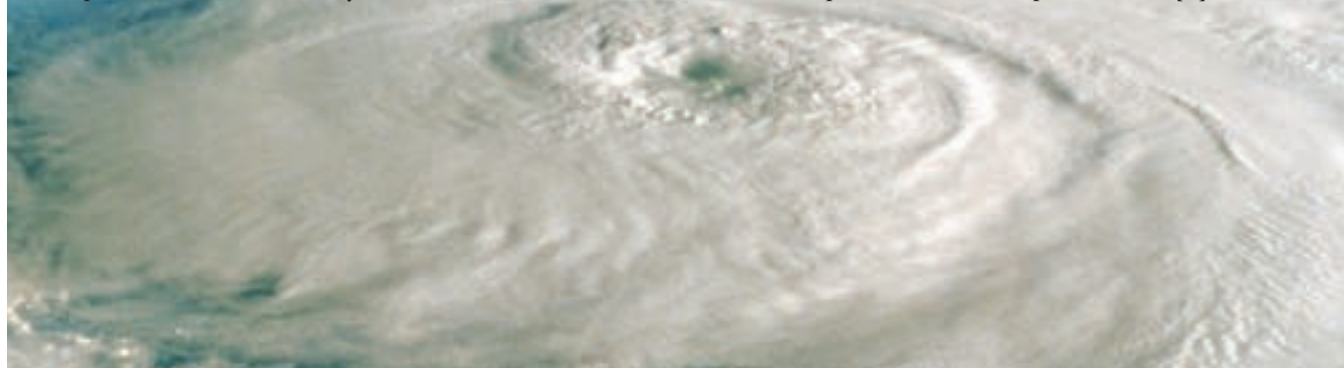
reduced, the damage due to wind-driven rain infiltration is becoming more pronounced.”

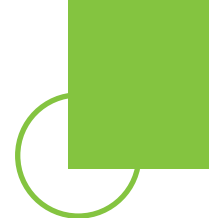
Recommendations for Change

The HRAC has since produced a consensus report distilling all such recommendations into proposed changes to Florida's building codes, some of which have been fast-tracked for early implementation.

Among the recommendations were several that addressed mitigation of water penetration through windows:

- Windows and doors [should] be correctly rated and tested according to AAMA/NWDA 101/I.S. 2-97. [AAMA/WDMA/CSA 101/I.S. 2/A440-05 also available.] Mulled window units, double windows or composite windows [should] be tested and held to the same requirements as single units. (A test method and standard does exist to accomplish this: AAMA 450, *Voluntary Performance Rating Method for Mulled Fenestration Assemblies*.)
- Water managed window and door installation requirements [should] be developed and the Florida Building Code altered to require them.
- Develop standard[s] for water





intrusion appropriate to hurricane-prone regions.

- Address installation instructions in relation to the recommendations of the FBC's product approval working group, which require the use of approved manufacturer installation instructions, including attachment requirements.

Developing Hurricane Standards

In view of these recommendations, AAMA is taking the lead in investigating the water control performance of windows under hurricane wind and rain-load conditions. Last fall, the AAMA Southeast region technical committee formed a hurricane [water penetration] standard development task group to accomplish this mission. The project is in its


"FEMA asked that 'the window/curtainwall industry re-evaluate the test pressures that are currently used to assess resistance to wind-driven rain.'"

early stages, gathering data on real-world indoor/outdoor pressure differentials due to hurricane winds, cycling to simulate actual time-pressure profiles (wind gusting) and effects of dynamic pressure (turbulent wind flow). So far, the task group has reviewed test methods used here and in other countries and has commissioned some preliminary testing of window products.

While it is too early to speculate where the investigation may ultimately lead, options include a test method and rating system, which could conceivably take the form of optional higher water penetration

test pressure for hurricane zones. A design spec to meet higher water resistance requirements or possible installation

guidelines may be future considerations. The task group hopes to have a final version in a year.

There is recognition among manufacturers that we need to do something more beyond current standards, part of which is to quantify the level of performance that is expected. Perhaps it is a positive commentary on how far the building sciences have come when we begin to shift concern from how to keep buildings from being destroyed to how to keep their interiors high and dry in the face of two inches-per-hour rains and 150 mph winds. 

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The Expert Asks Back

Katrina's Wake Spurs Questions About Mold

by Charles L. Perry, Jr.

Charles Perry is a principal of Environmental Assurance Group, an environmental insurance underwriting and brokerage firm.

Once present, mold spores are impossible to control. Remediation professionals tell war stories of bleaching or scraping mold off of wall cavities or ceiling tiles, and while they're scraping, they can see spores shooting into the air, looking for another hideout in which to reproduce. Mold has managed to thrive on this planet a lot longer than most any other organism, including humans, because of its survival tactics. It is the Rasputin of environmental problems, surviving multiple remediations, while its weaker cousins— asbestos, lead and radon—are considered gone for good after one removal effort.

B) A normal temperature range: no. Unless builders' clients are happy living in below freezing or surface-of-the-sun temperatures, their mandate is to build structures that provide year-round comfort. Unfortunately, mold and humans thrive in the same temperature range. Mold likes it a little muggier than we do, which is why remediators spend most of their time in wall and roof cavities near bathrooms and kitchens.

C) The presence of moisture/water: no. Back to my original point, accidents happen, and water penetrates areas in which it does not belong. Katrina-size disasters do not come along every day, but pipes break, sinks crack, toilets back up, refrigerators leak, roofs lose shingles, window seals pop ... builders and remediators are holding back the ocean with a broom if they think they can control water.

D) The presence of a food source: yes. Mold feeds on cellulose, the organic material found in carpets,

Before New Orleans and other Gulf Coast cities had even been emptied of water, experts were predicting "monster mold" growth.

Was the standing water the only thing needed to spur this growth spur?

As New Orleans residents began to pick up the pieces of their lives and return to homes left soaking in standing water for weeks, mold was probably not the first thing on their minds, nor would I expect it to be. For builders and remediation professionals, however, Katrina's aftermath has offered some useful lessons.

First and foremost, Katrina proves the pointlessness of the argument within the industry that all you have to do is keep water out to avoid mold. Mother Nature often does not cooperate with this theory, even though it is made with the best of intentions.

The conditions required for mold to grow include: A) the existence of mold spores, B) a normal temperature range, C) the presence of moisture/water and D) the presence of a food source. So let me answer this question with a question: which one of the four sides of the "mold square" is completely under the control of the builder?

If you answered all of the above, you are going to be held back a grade.

A) The existence of mold spores: no.


Quiz Time

A Mold spores	B Normal temperature
C Moisture/water	D Food sources

Which one of the four sides of the "mold square" is completely under the control of the builder?

furniture fabrics and especially paper. Paper, especially recycled paper used on standard wallboard, comprises 80 percent of the surface area in most post-'50s buildings. There are now viable alternatives to using paper-faced materials in residential and commercial projects.

By the way, mortgage lenders would like to see builders ace this quiz. It is, after all, their collateral at risk.

The development of mold inspection and detection protocols and the required use of mold-resistant building materials—inorganic non-woven housewrap, new roofing systems, raised floor systems and paperless wallboard—can significantly reduce the risk of mold contamination. Unfortunately, these new techniques and materials cannot help in the face of a catastrophe like Katrina, but that city will rise again, hopefully with the help of informed builders who understand mold prevention versus the wishful thinking of water protection. 

What concerns do you have about mold and moisture problems? E-mail mheadley@moldmag.com with your question.

MISS DECEMBER

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EMPLOYEE DATA SHEET

NAME: Nikki Holiday
TITLE: Finance Manager
EDUCATION: Bachelors in Accounting and Finance
BIRTHPLACE: Chicago, Illinois
HOMETOWN: Hollywood, Florida
AMBITIONS: Through rain, snow, sleet or hail, making
sure the invoices get processed on time.
FAVORITE MOLD TYPE: I like all types of mold. The way
I see it, as mold grows, so does our customer's bottom-line.
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8 Ways to Prepare to Win Molding a Successful Lawsuit Strategy

by J. Nick Badgerow and Kelly A. Campbell

J. Nick Badgerow and Kelly A. Campbell
both practice law at Spencer Fane Britt &
Browne LLP in Kansas City.

The increase in the number of mold “infestation” lawsuits, and the publicity surrounding multi-million dollar settlements, have led some people to assume that mold cases cannot be won by the builder or component supplier.

This conclusion is not well-founded. In cases where there is not evidence of clear and obvious fault, there is no reason to expect any greater risk of an adverse verdict than in the normal construction defect claim. A number of factors based on early involvement will help any potential defendant confronted by a mold claim or suit. Here are our suggestions:

1. Don’t Ignore the Problem. If a homeowner or business owner makes a claim that your work has resulted in leaks that have led to mold infestation (or if a contractor informs you as the sub or supplier, that such a claim has been made), an early response can have several positive effects.

First, early customer contact will engender positive feelings on the part of the owner. Second, early contact will allow you (and your expert—see below) to get into the building before things have been changed, destroyed or removed. Third, early contact makes it easier to provide some quick and preventative customer service.

2. Get Help Early in the Case. A lawyer can give you advice about the legal issues and elements of a

claim, as well as potential defenses. The lawyer can also find and engage an expert who can advise about investigations and/or remedial measures before it is too late.

3. Notify Your Liability Insurer. Your agent may assert there is no coverage for mold claims. Give formal notification of the claim anyway, as soon as the claim is received. Failure to make timely notice has cost many insured companies the coverage to which they would otherwise be entitled.

4. Engage in Good Customer Service. Even if you deny any defect in your work, sometimes an easy, inexpensive fix can prevent the problem from getting worse. If water is flowing into the house through an obvious hole, isn’t it reasonable to plug the hole and argue later about who caused it?

5. Preserve the Evidence. If repair work is done, do not discard the allegedly defective components. Preserve the evidence, keep it in a dry, enclosed location where it can be used later and maintain a clear chain of custody. In one mold case that we tried involving a claim of defective windows, we brought the actual windows to the trial where the jury was able to examine them. Like us, the jury found no defects or evidence of infiltration and rendered a defense verdict.


6. Investigate the Plaintiffs’ Expert. As we have pointed out in previous articles, a cottage industry of self-proclaimed “experts” has sprung up like mushrooms from the growth of mold claims. Just because the homeowners have hired an “expert” does not mean that his/her



opinions are medically or scientifically valid, or even legally admissible. Check out the background, experience, training, writings and testimony history of the “experts.”

7. Investigate the Plaintiffs. As we have also pointed out in prior articles, there are any number of causes for the respiratory, physical and even psychological claims being asserted by so-called mold plaintiffs. It is worthwhile to investigate these plaintiffs’ past physical medical history, including smoking, asthma, work exposure, mold intolerances, allergies, pets and plants. If they have placed their emotional condition in issue, then investigating their emotional and psychological history is also fair game.

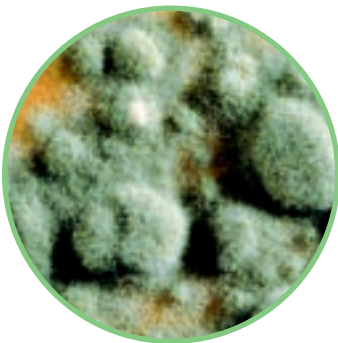
8. Look for Other Causes. Determine if other participants contributed to the water infiltration and/or the mold. Comparative fault may allow you to spread the liability.

If a mold claim is asserted, these steps can help a defendant win the case. A proactive approach to an apparently minor issue will help address the problem before it becomes a major headache. 

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INDUSTRY NEWS

ASHRAE to Implement Preventative Plans for Controlling Mold

Sound moisture management should take precedence over energy cost savings, according to a new position document from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Minimizing Indoor Mold through Management of Moisture in Building Systems describes ASHRAE's position on the management of moisture in buildings and highlights resources on this topic available through the society.

The document includes recommendations for proper moisture management, specifically that:

- Building envelopes, penetrations and building systems be designed and built to protect the indoor environment and the building materials from water infiltration or accumulation;
- Building and system design reflect internal or external

or moisture that could cause condensation on surfaces or within materials;

- Building and system design, operation and maintenance provide for drying of surfaces and materials prone to moisture accumulation under normal operating conditions;
- Building and system design, operation and maintenance provide for water management of surfaces and materials that are expected to have moisture present;
- Mechanical system design properly addresses ventilation air;
- Building and system design, construction and operation take into account occupant uses;
- Each building have an operation and maintenance plan;
- The sequence of operation for the HVAC system contain appropriate provisions to manage humidity, control pressurization and monitor critical conditions; and
- Moisture accumulation be investigated in a timely manner and steps be taken to identify and control the course of water.

The position document can be downloaded at no charge via the "position documents" shortcut on www.ashrae.org.

➔ www.ashrae.org or call 800/527-4723.

Magazine Named Official Publication of Environmental Education Foundation

Mold and Moisture Management magazine has been named the official publication of the Environmental Education Foundation (EEF) of Gilbert, Ariz.

The Environmental Education Foundation is a non-profit corporation that provides educational seminars, publications and technology to both the public and private sectors through donations from its contributors and cooperative agreements with government agencies. New training by the foundation, based on a contract with the Environmental Protection Agency, is beginning to promote EPA's new guidelines for managing indoor environmental quality, with a focus on mold (for related article, see page 40).

The agreement will lead to the magazine's designation as an official publication of EEF dealing with IAQ and mold issues. As part of the arrangement, the approximately 5,000 members of EEF will receive subscriptions to the magazine, courtesy of EEF.



Environmental
Education
Foundation

Mold Prevention Course Offered at Florida Atlantic University

Florida Atlantic University's School of Construction Safety and Architectural Engineering in Fort Lauderdale, Fla., has launched a course titled *Water and Mold Prevention During the Construction Phase*.

The course was accepted by the Florida Licensing Board for construction continuing education units. It is a fully accredited elective class designed for architects, engineers, general contractors and developers. The



Florida Atlantic University has brought mold into its classrooms through a new course on mold prevention during construction.

course explores the pros and cons of new construction materials and the involvement of water intrusion or indoor environmental professionals.

The 40-hour classroom instruction and discussion emphasizes building science and forensic investigations to identify water intrusion and prevent mold amplification in the construction phase. The program will explore microbial assessment after a water loss with sampling strategies and techniques, interpretation of analytical data and health issues pertaining to mold growth.

The course will also focus on the pre- and post-construction legal liability of the developer, builder, architect and the engineering department. It will address contract development to limit liability exposure.

The curriculum was developed by Maurice Baum, industrial hygienist and certified microbial consultant; attorney Michael Greene, an architecture expert known for handling the Martin County Courthouse mold case, the first mold litigation in the country; and Ron Sabac, a construction consultant and building forensic expert.

The first class is schedule from January 23-27, 2006. Other classes will be offered at University of Florida, Florida State, University of South Florida, University of Central Florida and University of North Florida Jacksonville.

➡ contact Gene Ouellette at gouellet@fau.edu or 954/229-4179.

FREE LITERATURE

New Brochure Focuses on IEQ

A new 12-page brochure focusing on how building materials, maintenance procedures and daily practices of occupants can affect the indoor environmental quality of a building is now available from USG Interiors Inc.

Entitled *Indoor Environmental Quality*, the brochure is oriented toward acoustical ceiling solutions. It focuses on three specific areas that can impact a facility and its occupants' health and comfort: mold and mildew, volatile organic compounds and formaldehyde.

The brochure begins by discussing healthy building design and where mold and mildew and other problems may originate in the design, construction, operation and/or maintenance phase of a structure. It ends with an examination of the negative effects of mold and mildew and the role that moisture plays in their growth, including common contributing sources of building moisture. It includes a list of more than 20 USG Interiors ceiling panels and the levels of protection they offer against fungi, mold, mildew, bacteria, yeast and algae.

➡ www.usg.com or call 888/874-2450.

Fungal Disease Resource Center Granted Swift Non-Profit Status

The Internal Revenue Service officially granted expedited approval of 501(c)(3) nonprofit status in September for the Fungal Disease Resource Center (FDRC). Colorado-based FDRC was formed earlier this year to increase awareness and generate support for individuals faced with health and other issues allegedly after exposures to indoor mold.

"I asked for expedited processing, based on the fact that mold-related health issues have already been identified by researchers as an emerging epidemic in the U.S.," said Jonathan Lee Wright, FDRC founder and president.

Adventure sports photographer Wright founded the national nonprofit to aid victims suffering from sicknesses attributed to mold. The nonprofit corporation has recruited help from a variety of disciplines and has a vast support network, according to an FDRC news release.

"One of FDRC's first priorities is grass-roots public education," reported Wright. "We already have the ears of important legislators and certain segments of the scientific research and medical communities-now all we need is the funding to rigorously mount a far-reaching and effective public awareness campaign. We're now actively seeking substantial tax-deductible contributions to move more quickly-and closer to FDRC's ultimate goal of direct aid to victims."

➡ www.fdrinc.org.

AQS Releases Hurricane Guide

Atlanta-based indoor air quality firm Air Quality Sciences Inc. (AQS) has released a guide to educate commercial property owners and managers on the initial steps required to begin the hurricane recovery process. The guide, *Post Hurricane Basics: Restoring Your Property*, outlines best practices for beginning the process of remediating a water damaged building.



continued on page 12



"When commercial buildings are damaged by a natural or man-made water disaster, the restoration process can be long and complex," said Anthony Worthan, president of AQS. "The sheer size of the building, the number of players involved, and the implications for the business make the process infinitely more complex than it is for water damaged homes."

The updated guide outlines the steps and best practices to follow when initiating the cleanup. The information included is based on more than 15 years of extensive experience in managing the remediation of water-damaged properties caused by natural and man-made disasters. It can be found on the Building Consulting page of AQS's website.

➔ www.aqs.com or call 770/933-0638.

MBA Releases Mold White Paper

The Mortgage Bankers Association (MBA), a national association headquartered in Washington, D.C., that represents the real estate finance industry, has released its mold white paper, *Mold: Steps Toward Clarity*. This guidance document was written by the MBA commercial real estate/multifamily finance board of governors loan origination committee's mold working group.

The purpose of the paper is to provide an educational resource on mold and damp indoor commercial spaces for lenders, servicers and others involved with real estate loans, according to an association news release. The paper examines how knowledge of mold has evolved and what may be done now to effectively mitigate mold and dampness issues.

"In an attempt to eliminate the misinformation that exists with regard to the mold issue, this authoritative reference piece was crafted," stated Don Glitz, vice president, corporate risk manager of GMAC Commercial Holding Corp. and chair of MBA's commercial/multifamily mold working group. "It is an all-inclusive guidance document that serves to clarify all facets of the mold issue, so that our industry can make informed decisions based on individual situations, business models and transaction requirements."

Because of the rapidity with which this issue is evolving, the commercial/multifamily mold working group anticipates the issuance of periodic supplements to this document as significant developments occur, according to an MBA news release.

To view the white paper, visit www.mortgagebankers.org/cref/standards.asp.

COMPANY NEWS

Tennessee Company Mobilizes to Provide Mold Prevention Training

Nisus Corp. of Rockford, Tenn., a manufacturer of antimicrobial and pest control coatings, is holding training workshops for pest control operators (PCOs) on the proper procedures for making flood-damaged homes in New Orleans and Mississippi habitable.

In late September, Nisus partnered with Oldham Chemical for a training workshop in Jackson, Miss., that brought together more than 50 companies from Louisiana, Mississippi, Alabama and Texas. In October, chemical manufacturer Univar joined with Nisus and more than 78 companies from hurricane-damaged areas.

While there is considerable debate within the pest control, mold remediation and insurance industries on whether mold treatment and prevention fall within the range of services for pest control companies, the Louisiana Department of Agriculture and Forestry took action by adopting a "Declaration of Emergency" amendment allowing PCOs to engage in antimicrobial [mold, bacteria and virus] pest control for at least 120 days. This action was intended to help provide sufficient numbers of licensed commercial applicators to control the growth of microbial organisms and reduce public health risks in areas damaged by Hurricane Katrina, while at the same time discouraging sham operators from preying on the victims of the disaster.

At the request of pest control companies and associations, Nisus developed and organized the training workshop, and created and assembled supporting materials for the session. The educational materials include a 10-step checklist to help pest control professionals deal with the emergency situation.

➔ www.nisuscorp.com or call 800/264-0870.

Water Seal™ Program Helps Contractors Nail Down More Business

The Thompson's Co. of Hollister, Calif., manufacturers of exterior waterproofing products, has launched a comprehensive program designed to drive business for deck building and maintenance contractors. The Thompson's™ Water Seal Certified Contractor program offers to qualified contractors a full menu of professional training and marketing tools.



Becoming certified is a three-step process. First, contractors download from the company's website a manual to develop their knowledge of effective cleaning and maintenance procedures. Next, they register their business contact information and accept the Water Seal Certified Contractor Code of Ethics. Finally, they complete the online examination with a score of 90 percent or higher.

Upon successfully completing the certification process, the contractor can take advantage of a wide variety of tools to help promote their deck maintenance services and access exclusive online areas of the contractor section. These include: marketing and business support materials; Advantage Points, which allow contractors to accumulate points for purchases of qualified Water Seal products; professional resources, with links to associations and online media; online product information and MSDS sheets; and listing in a contractor locator used by consumers interested in hiring a certified professional in their area. New features, such as an e-newsletter, advertising artwork and logos and business tips and articles will be added to the program on a regular basis.

The program is accessed via the brand's website.

➔ www.thompsonswaterseal.com or call 800/367-6297.

MERGERS AND ACQUISITIONS

Fluke to Acquire Infrared Solutions

Fluke Electronics Corp. of Everett, Wash., a manufacturer of handheld test and measurement tools, has agreed to acquire Infrared Solutions, a provider of portable thermography products.

Founded in 1994 and headquartered in Plymouth, Minn., Infrared Solutions is privately owned and recognized as an innovator in the application of infrared (IR) technology for commercial and industrial use. The company designs, manufactures and sells a broad array of thermal imaging products for applications across a number of channels including predictive and preventive maintenance. The company's products include the IR FlexCam® and IR InSight®, which are rugged, easy-to-use, portable thermographic cameras with advanced reporting software.

Fluke expects the transaction to close at the end of this year, following satisfaction of certain customary closing conditions.

Fluke has also recently acquired LEM Instruments, a division of LEM Group based in Liverpool, U.K. LEM Instruments is a European manufacturer of test and measurement equipment.

➔ www.fluke.com or call 888/308-5277. 

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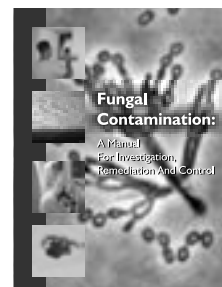
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Is mold toxic?

Does the presence of mold in buildings cause flu-like symptoms?
 Does exposure to mold and fungi cause asthma?

The answers to these and many other questions can be found in **Fungal Contamination: A Manual for Investigation, Remediation and Control**. More than 20 chapters covering all aspects of mold, including:

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- Analysis of laboratory results & testing
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- Comparison of various guideline documents
- Water damage emergency procedures
- Cleaning contents and HVAC systems
- Jobsite and personal safety requirements
- Post-Remediation Verification
- The real meaning of certifications and licenses regarding the protection of the public and responsibilities of the practitioner



Text and procedures are backed by reliable scientific sources as identified. By **Hollace S. Bailey**, PE, CIAQP, past president of IAQA, member of multiple ASHRAE committees, and contributor to multiple nationally used standards, position documents and policies regarding IAQ.

To order, go to www.theMoldManual.com

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WOOD PRODUCTS

"Perfect" New Wood Treatment Blocks Mold and Termites

WoodSmart Solutions Inc. of Boca Raton, Fla., has developed a factory-applied, dual-technology treatment for lumber designed to prevent moisture, mold, fungi and termites from attacking wood building materials from the moment they leave the mill.

BLUWOOD™ lumber is treated with a chemical called Perfect Barrier™. The first part of the system is the infusion film. The proprietary film encapsulates wood substrates to form a water-repellent, vapor-permeable barrier that controls liquid moisture absorption yet allows moisture vapor to escape. In effect, the treatment lets the wood 'breathe,' which helps maintain a normal moisture balance, while preventing mold



WoodSmart solutions say its BLUWOOD lumber can sit unprotected on a jobsite for up to six months.

growth on the dried film.

The second part of the system is the DOT wood preservative, a fun-

gicide and insecticide borate solution that resists decay and provides protection from rot fungi and wood-ingesting insects, including subterranean and Formosan termites—all without adding carcinogens, heavy metals or solvents to the treated material.

The lumber is treated on all six sides and because the process takes place before lumber reaches the job site, moisture never has the opportunity to infect it. It can sit unprotected on a site for up to six months and still provide resistance to moisture and fungi, according to the company.

BLUWOOD's resistance to moisture has been thoroughly tested by independent labs and universities to the standards of the American Wood Preservers Association. The lumber has a transferable warranty against mold growth on the dried film, as well as against fungus and termites for the life of the structure.

➡ www.perfectbarrier.com
or call 561/16-1972.

SILLS AND FLASHING

Water Out Flashing Bends Over Backwards (and Forwards) to Protect Windows

Water Out Flashing of Charlotte, N.C., has introduced new door and window head flashing.

According to information from the company, the new piece is very flexible, and can be used for straight windows/doors or can be bent to fit radius units as well. The head flashing is designed with special drain grooves along its length to keep water from migrating right or left, channeling it to the outside. It also features a kickout on both ends of the piece.



The head flashing pieces come in 6-foot lengths, and can be trimmed or cut to fit any window or door. The 6-foot length is used so that it can easily fit a 3-foot window. The flashing is made out of polypropylene and comes in copper, black and clear. According to company information, it can also be manufactured in custom colors.

➡ www.wateroutflashing.com or call 866/568-0050.

BARRIERS

Sto EmeraldCoat Provides Protection Under Stucco and Other Claddings

Atlanta-based Sto Corp., a manufacturer of cladding, coating and restoration systems, has launched a new waterproofing/air barrier system called Sto EmeraldCoat.



EmeraldCoat is a ready-mixed, flexible waterproofing material that was specially formulated for use under Portland cement stucco and other claddings. It is applied directly to wall sheathing to create a stucco-

type system and functions as a vertical, above-grade waterproofing/ air barrier when combined with Sto Gold Fill® and Sto Guard® Mesh.

The product prevents air leakage between the sheathing and waterproofing/air barrier, creating a rigid and stable assembly under air pressure loads. The air barrier is also vapor permeable, so moisture does not get trapped in the wall cavity. According to company information, the durable barrier is seamless, meaning no tears, holes or mislapped seams that can compromise performance in service and create wall failures that cost money to repair and correct.

EmeraldCoat has a water-based formulation and is non-toxic and VOC compliant. It can be spray- or roller-applied, and does not tear or lose its effectiveness with exposure to weather during construction or while in service.

➡ www.stocorp.com or call 800/221-2397.

SEALANTS

Sika Corp. Announces Product Lineup Up to Par for InstallationsMasters™

Madison Heights, Mich.-based Sika Corp.'s industry division has announced that it has assembled a full range product lineup for use in installing doors and windows to InstallationsMasters and ASTM E2112 standards.

The full range product lineup includes one-part Sikalfex® polyurethane sealants, low-VOC Sikalfex® silane terminated polymer sealant, neutral cure SikaSil™ silicone sealant, SikaPlan®-SAF100 self-adhered flashing, Sika®Boom expanding polyurethane insulating foam, Sika® Backer Rod, Sika Glass and Surface Cleaner and Sika hand wipes.

➡ www.sikaindustry.com or call 800/548-0496

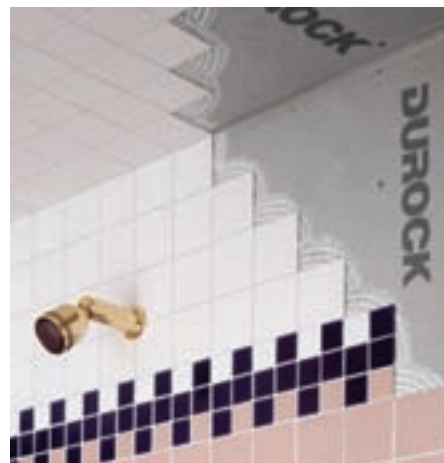


CEMENT BOARD

DUROCK® Cement Board Provides High-Performance Tile Substrate

DUROCK brand cement board from United States Gypsum Co. (USG) of Chicago is a high-performance tile substrate suitable for use in wet or dry area wall and floor construction.

The panels are composed of an aggregated portland cement core sandwiched between two layers of reinforcing glass-fiber mesh. The water-durable DUROCK panels will



not swell, soften, decay or disintegrate when subjected to moisture, making them effective for wet area tile walls and floors such as bath and tub surrounds and entry foyers. In addition, they are impact-resistant and dimensionally stable, as well as easy to handle, cut and install.

Standard DUROCK cement board panels come in ½-inch thicknesses and 5-foot lengths with a choice of 32- or 36-inch widths. The panels are smooth on one side for adhesive applications and textured on the other for thin-set mortar. The ends are cut and the edges are smooth-wrapped for easy handling.

➡ www.usg.com or call 800/USG-4YOU.



No Time to Waste

A Mold Remediation. A Timeline of Aggravation

by Peter Sierck

A couple and their teenage children were ready for a two month vacation to Europe, but not for the mold they discovered in their house prior to their departure. The problem seemed to be a minor one, but a source for the mold had not yet been found by contractors when the family boarded the plane. When they returned, would their home be the paradise they had left?

Timeline: one month prior to departure.

The Santa Monica Mountains provide a breathtaking view of the greater Los Angeles area. Beautiful, large homes are constructed here, hugging the slopes of this prime real estate area. Five years ago, a famous trial lawyer bought his dream home for himself and his family here. At that time, California was in a period of drought, between El Nino conditions.

It does not normally rain a lot in Southern California but when it rains, it pours. This past winter was a particularly wet one and, during the rains, the homeowner noticed that water pooled on the decks and next to the house. The water always disappeared, so the owners were not overly concerned. Then in April, the maid complained about an odor and some spots on the exterior wall in her quarters downstairs. The son also noticed some spots on the exterior wall of his bedroom. The homeowner decided to call a mold inspector.

The homeowner refused an inspection of the entire home, so the testing and inspection were limited to the downstairs areas of concern. The inspector conducted moisture measurements on the exterior wall of the son's bedroom, the maid's room and at the drywall along the retaining wall. The walls measured wet (80 to 100 on the relative scale) up to 2 feet high and efflorescence was present on the slab along the retaining wall. One of the decks was located above the bedrooms. Elevated moisture levels were also detected in one area on each of the bedroom ceilings. No visible mold growth was observed on the ceiling.

The air-sampling data reflected similar indoor spore levels when compared to the outside reference samples. The surface samples collected from the exterior wall and the drywall along the retaining wall yielded active growth of penicillium and aspergillus. The report recommended destructive testing for further evaluation of the ceiling areas that still showed no visible damage. The report also stated that the upstairs areas of the home had not been inspected.

At the same time, the family was planning for a two

"What would the homeowners do when they found their dream home littered with containments and opened ceilings?"



month trip to Europe with their three teenage children. This made the timing for a mold remediation very inconvenient. When the builder was contacted, the homeowner requested that the remediation be performed and completed during their absence. The luggage was packed and the family departed for their exciting journey.

Timeline: two months until homeowners' return and counting.

The builder contacted a remediation company that performed a mold remediation on the exterior and retaining walls, leaving visible damage. No destructive testing was performed on the ceilings, as recommended in the inspector's report. The builder's customer care representative was not in a hurry to get the remediation completed, since the homeowners were out of town for two months. In fact, a month passed before the mold inspector was called back to perform a post-mold remediation clearance testing.

Timeline: one month and counting.

The post-remediation air sampling yielded comparable levels in the containments when compared to the outside reference samples. No areas of visible mold growth were present in the remediation areas, but a strong musty odor was still noticed during the visual

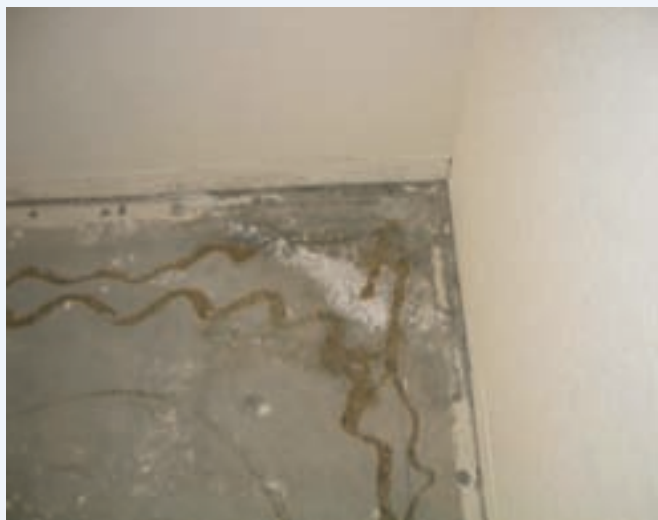
inspection in the downstairs bedrooms. The mold inspector did not pass the site for reconstruction and recommended further evaluation through destructive testing. A site meeting between the builder, the remediation contractor and the mold inspector was scheduled for the next day.

The meeting took place in the breakfast area of the kitchen. The builder and the remediation contractor resisted the recommended approach and a discussion ensued at the site. The mold inspector would not change his opinion and insisted on destructive testing.

Then, during the meeting they noticed stains on the ceiling of the kitchen. The area did not measure wet, but the mold inspector took a surface sample. The sample yielded active aspergillus growth. That changed everything. The next report recommended destructive testing on the kitchen ceiling and on the ceilings in the downstairs bedrooms under the family room deck.

Timeline: three weeks and counting.

Containments were erected and the inspection of the opened areas revealed mold growth in the ceiling cavities under the decks. The conclusion was that the decks were leaking around the drains and additional remediation would be necessary. The decks overhang the kitchen and downstairs bedrooms. All parties involved were under tremendous pressure by this point. What would the homeowners do when they found their dream home littered with containments and opened ceilings? Yet no one could reach them to find out.



With two months to do the job, the builder's representative was in no hurry to get the remediation complete—so mold growth hurried along without notice.



Not surprising from its location below a water-dripping deck, this ceiling measured wet at the first inspection; more surprising, it was not immediately remediated.

Timeline: ten days and counting.

The containments were erected and the countdown continued. All moldy materials were removed as fast as possible. The remediation and reconstruction of the interior needed to be finished by the time the homeowners returned. The decks needed to be water tested to insure proper drainage. Five days were left to complete the entire project including the reconstruction. The project called for double shifts.


Finally, the work areas were ready for testing. The site passed, no odor was detected, and it was ready for reconstruction.

Timeline: five days and counting.

Evaluation of the drainage system of the decks revealed that the drain connections had developed gaps and were clogged with leaves and debris. The drainage system for the retaining wall needed to be upgraded to handle the wet winters.

The reconstruction was still under way when the homeowners returned—and they could not believe what had happened during their absence.

Timeline: zero days left. And one week later, the reconstruction and painting was finished.

The hands of time stop for nothing—including mold. 

Peter Sierck is an industrial hygienist and the director of Environmental Testing & Technology, Inc. He participated in the development of the IICRC standards S500 for professional water restoration and the S520 for professional mold remediation. He can be reached by e-mail at psierck@iaqsurveys.com.



Across the Board

An Update on State Licensing of Mold Remediators

By Steven R. Silicato, REM, CIE

Steven R. Silicato, REM, CIE, is vice president of MARCOR Remediation Inc. an environmental services company with 14 offices nationwide. For more information, contact Silicato directly at silicato@marcor.com or call 877/6-MARCOR.

When it comes to indoor air quality concerns, the issue of mold continues to be high on the list of most U.S. state legislators. Thus far, only Texas has passed legislation requiring mold professionals to be trained, certified and licensed. While a handful of other states also are actively studying or debating mold remediation licensing, property owners continue to face the challenge of finding qualified, reputable contractors to remedy the serious hazards of mold in their homes and workplaces.

The sad fact is that there are currently more state/federal/local requirements, certifications and licensing mandates for individuals at storefront “nail salons” than there are for people coming into homes and buildings performing testing, sampling and remediation of mold.

Signing Legislation

The ground-breaking Texas bill, signed into law in 2003 and effective January 1, 2005, created a set of work practices that require professionals engaging in mold assessment and remediation to be licensed by the state Department of Health. The program includes licensing fees for individuals, companies and their employees and the creation of a uniform code of ethics to be followed. Licensing involves a number of activities, including a competency examination. The department has the authority to enforce licensing requirements and investigate any complaints about mold-related activities.



Building and home owners should have the right to expect that professionals hired to remediate mold are properly trained, certified and licensed.



Mold growth like this is something trained industry professionals can handle. The competition from untrained workers due to lack of regulations may be another story.

The new Texas licensing requirement has been supported by a number of respected professional organizations, such as the American Industrial Hygiene Association (AIHA).

“AIHA members in Texas and around the country share your interest and commitment to address an issue that has received high-profile media attention, considerable litigation nationwide and impacts the health of countless individuals,” wrote Thomas G. Grumbles, CIH, president of the association, in his review of the legislation.

Other states are actively considering mold remediation licensing, including Louisiana and Florida, where legislators also have considered creating a registration system for mold professionals. Some other states, such as Oklahoma, continue to study the issue. In Arizona, in addition to a licensing law, specific requirements for mold inspection reports have been proposed. Wisconsin lawmakers are looking to prohibit the use of the terms “state-certified mold inspector” or “state-certified mold remediator” unless the individual was certified by the state Department of Health and Family Services. Any violation could result in the imposition of both civil and criminal penalties.

Supply and Demand

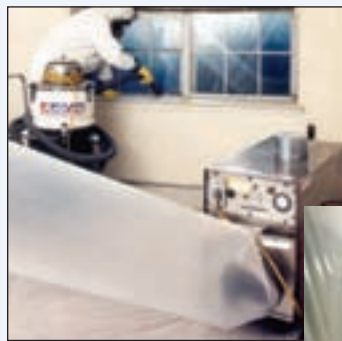
I believe laws similar to the one adopted in Texas are urgently needed throughout the U.S. While many states now demand written disclosure of the presence and location of existing mold infestation to prospective tenants or purchasers, there still are no federal or

state standards for acceptable mold levels in buildings or homes. Despite growing health concerns, litigation and building shut-downs due to mold contamination, many owners and facility managers admit that they are not adequately prepared to deal with a mold outbreak. In addition to lawsuits with awards in the millions, mold causes more than \$2.5 billion a year in insurance claims.

“While many states now demand written disclosure of the presence and location of existing mold infestation to prospective tenants or purchasers, there still are no federal or state standards for acceptable mold levels in buildings or homes.”

As a result, the demand for mold inspectors and remediators is expected to grow exponentially over the next few years. Some of these programs lure inexperienced entrepreneurs with bold predictions that mold will be the “defining” environmental issue of the 21st century, or that mold testing and removal is rapidly becoming “big business.”

In an industry that lacks regulations and license requirements—and is often characterized by recommendation of expensive (and sometimes unnecessary) testing and laboratory analysis, inadequate and unsafe equipment, unskilled “temp” workers and insufficient liability insurance—building owners and managers need to rely on qualified, competent experts who can not only manage a catastrophic mold infestation successfully, but also leverage the latest tools and protocols for long-term prevention. Because of the risks, building owners and managers, indus-




Some industry professionals expect the demand for mold inspectors and remediators to continue to grow over the next few years.

trial hygienists and others must demand a commitment to excellence from any mold remediation contractor with whom they contract.

The ultimate right answer when it comes to dealing with indoor mold growth is to require that all contractors and/or consultants not only demonstrate competency but also be licensed by the states in which they operate. Building managers and homeowners alike have the right to expect that the professionals they hire to assess and remediate mold contamination—with all its inherent health, litigation and economic risks—have been properly trained, certified and licensed to do so. To settle for a lesser standard will only serve to compound this growing problem.

The Selection Process

Following are some suggested guidelines to assist in selecting a qualified mold professional:

- Demonstrated experience/expertise in mold/microbial remediation in a commercial or institutional building environment rather than residential experience only.
- Demonstrated expertise in constructing and installing negative pressure enclosures and engineering controls to prevent mold spores from migrating to non-impacted areas of buildings.
- Proof of written maintenance programs and integrity testing on all high efficiency particulate air (HEPA)-equipped air scrubbers/vacuum cleaners to ensure efficacy.
- Proof of pollution liability insurance, which includes mold remediation and does not exclude “microbial matters.”
- Résumés of key project personnel, demonstrating training and certification for proficiency and competency in the guidelines and standards established by nationally recognized organizations and trainer providers, such as the Indoor Air Quality Association or the Institute of Inspection, Cleaning and Restoration Certification.
- Proof of written work practices and procedures specifically for microbial remediation (not just copies of the Environmental Protection Agency Guidelines).
- Documentation of Occupational Safety and Health Administration-managed safety programs, i.e., respiratory protection programs, medical surveillance programs, HazCom training, etc. 

All Together Now: The IAQA-AmIAQ-IESO Unification Conference in Review

The combined annual meeting and exposition of the American Indoor Air Quality Council (AmIAQ), Indoor Air Quality Association (IAQA) and Indoor Environmental Standards Organization (IESO), was held October 6-9, 2005, at the Hilton in the Walt Disney World Resort in Orlando, Fla. *IAQA-AmIAQ-IESO 2005: The Unification Conference* was the first event held by the recently merged organizations.

According to Glenn Fellman, executive director of IAQA, attendance had more than doubled from the previous year, and indeed, the floor show was never quiet during three days of exhibit hours. Much of the buzz focused on the recent unification of the three organizations into one.

As explanation for the change, Bob Baker, president of IAQA, stated during the general meeting on the first day of the show, "We've got to manage and

**"Never compare storms.
You compare storms, you
make bad decisions."**

—Greg Frith with Fireservice Inc. in a seminar on hurricanes. According to Frith, a difference in degree in a storm's path can mean a deadly storm surge or nothing but winds, and many individuals who died in Katrina had compared the storm to earlier hurricanes that didn't result in the storm surge.

"The post remediation verification (PRV) criteria are surprisingly similar ... [including] the fact that the guidelines even do have requirements for PRV."

—Gail Brandys with Occupational & Environmental Health Consulting Services in a seminar on the 11 most popular microbial guidelines. Based on their similarities, Brandys noted PRV should include information on eliminating the water source, requirement for containment during remediation, visual inspection prior to build-back-with sampling if the visual inspection is inconclusive-discussion of moisture and odor levels and documentation of remediation process and final conditions.

change some perceptions about this industry."

Baker listed goals of the unification as changing perceptions, such as the idea of discord within the industry; eliminating duplications; advancing professionalism; and accommodating growth.

"We think the industry is ripe for an evolution," added Baker.

Each organization will retain its own name and identity, so the result is a membership organization with more than 5,500 constituents, an independent certification board for IAQ professionals and tradespeople and a separate standard-setting organization. During the session, the new roles of each organization were outlined.

AmIAQ will continue to award IAQ-related certification designations and to coordinate associated training programs. However, the Council will no longer offer a membership or provide member benefits. Current members of AmIAQ will become members of IAQA. IAQA's and IESO's certification pro-

UNIFIED BUT UNIQUE

<u>Organization</u>	<u>After Unification</u>	<u>What It's Giving Up</u>	<u>What It's Now Offering</u>
IAQA	Membership organization	Will no longer function as a certifying body	Will continue to provide all of the member benefits it currently offers, as well as benefits previously offered by AmIAQ and IESO
AmIAQ	Certification board	Will no longer offer a membership or provide member benefits	Will continue to award IAQ-related certification and coordinate associated training programs
IESO	Standard-setting organization	Will no longer offer membership or function as a certifying body	Will serve as an industry standard-setting body, promulgating industry standards and working with other standard-setting organizations

grams will be transferred to AmIAQ, and those certified by IAQA or IESO will either retain their existing designations or be awarded the corresponding AmIAQ designation.

At the conference, AmIAQ's assistant director Adam Andrews presented changes to the certification process. Andrews cautioned that although changes to the programs were impossible to avoid, no current certification holder would lose his or her title, even if that title is not offered after January 1, 2006.

"If you remember nothing else: no holder of a current certification from AmIAQ, IAQA or IESO will lose his certification as a result of this process," said Andrews.

Future certifications will be offered in four tracks—microbial, environmental, remediation and administrative certification—and the association has outlined on its website how to grandfather into new certifications and test into others.

IAQA will serve as a membership association and will continue to provide all of the member benefits it currently offers, as well as benefits offered by AmIAQ and IESO it does not currently offer, such as AmIAQ's chapter program. IAQA will no longer function as a certifying body.

"At what point and how much training does an individual need?"

—Danny Hunt with the IAQ Training Institute in a seminar on guidelines for mold remediation workers. Hunt discussed how two workshops from National Institute of Environmental Health Sciences have developed into guidelines that recommend minimum training criteria for mold remediation and maintenance workers. The difference between the levels of exposure to mold-contaminated structures between the maintenance and remediation workers should mean variations in training requirements.

Fellman listed as some of the member benefits IAQA will offer: several publications, membership emblems and recognitions, group insurance programs, educational and training opportunities, discounts in certification fees and the annual conference and exhibition.

He added that the association will also have a focus on government affairs, by offering its members access to lobbyists and an online state legislation matrix, while looking to create model legislation, shape new regulations and participate in special coalitions. Helping with

this effort is the Consumer Specialty Products Association (CSPA), which has also recently formed a partnership with IAQA. The lobbyist will track bills related to indoor air quality, offers its evaluation of the

"There are no silver bullets.

You can't go into an affected area, apply the product and everything is going to be okay."

—Tracy Lantz with the U.S. EPA in a seminar on the use of antimicrobials in HVAC&R systems. According to Lantz, about a dozen antimicrobial products were approved for use in HVAC&R duct work in 2002, but only a handful have been through an assessment which meets today's standards. The EPA developing a new policy for dealing with products registered with mold claims.

bill's sponsor and opponents—and whether it is likely to pass or not—and otherwise promote IAQA's position.

IAQA will also focus on research committees and co-op programs with other associations and organizations. Fellman explained that the unified associations hope to in the future cooperate with other groups in the IAQ arena.

IESO will serve as an industry standard-setting body, with the sole purpose of promulgating industry standards and working with other standard-setting organizations. IESO members will become IAQA members and IESO certifications will be transferred to AmIAQ. IESO will be funded by contributions made by IAQA, AmIAQ and other organizations that may be invited to participate in its standard-setting programs.

"IESO was created to write standards and we have already shown success in this area," said David Fetveit, IESO president. "By transferring our membership and certification programs to IAQA and AmIAQ, IESO will free up tremendous resources and have access to a broader base of expertise and talent needed for standards-setting work."

Members of the three associations approved the merger at the conference. The associations will assume their redefined roles and responsibilities on January 1, 2006.

visit www.iaqcouncil.org,
www.iaqa.org or www.iestandards.org.

continued on page 22

CDC, NIOSH Make Documents Available on Katrina Clean-up

In the aftermath of Hurricane Katrina, several organizations have added information on mold to their websites. In addition to numerous fact sheets available for home and business owners, the Center for Disease Control (CDC) and the National Institute for Occupational Safety and Health (NIOSH) have released information that may prove of use to mold professionals.

In October the CDC released *Mold: Prevention Strategies and Possible Health Effects in the Aftermath of Hurricanes Katrina and Rita*. The 52-page document (available online at www.bt.cdc.gov/disasters/mold/report)

“provides comprehensive information on how to limit exposure to mold and how to identify and prevent mold-related health effects.”

The document focuses on information already available from a variety of sources on assessing exposure, clean-up and prevention, personal protective equipment, health effects and public health strategies and recommendations. Notably, the document contains numerous references to additional resources.

On its hurricane response webpage (found at www.cdc.gov/niosh/topics/flood/services.html), NIOSH offers several documents with information for workers concerned with mold.

NIOSH Interim Recommendations for the Cleaning and Remediation of Flood-Contaminated HVAC Systems: A Guide for Building Owners and Managers



New guidance documents are helping workers determine the proper course of action in clean-up efforts along the Gulf Coast.

recommends that HVAC systems contaminated with flood water are properly cleaned and remediated. The document focuses on proper maintenance steps and instructs workers on using containment systems and proper protective gear, removing damaged insulation and filters, disinfecting with a bleach solution and operating the HVAC system according to ASHRAE standards.

Other NIOSH documents that mold workers may want to refer to include:

- *NIOSH Interim Guidance on Personal Protective Equipment and Clothing for Flood Response Workers;*
- *What Services Can CDC/NIOSH Provide to Workers Involved in Hurricane Katrina Recovery?;* and
- *NIOSH Interim Guidance for Postexposure Medical Screening of Workers Leaving Hurricane Disaster Recovery Areas.*

BRIEFLY ...

Interactive Occupational Training (IOT) of Lakewood, Colo., a full-service instructional content provider with more than 450 online training courses, has launched the first interactive online mold remediation certification training. The suite offered by IOT consists of two courses: **Mold and Microbial Awareness** and **Mold and Microbial Remediation Certification Training**. ➡ www.interactiveoccupationaltraining.com/iot or call 303/984-4671 ... The infrared building science certification course offered by the **Building Science Institute (BSI)** in conjunction with the **Infrared Training Center (ITC)**, a thermographer training organization, has been approved for continuing education credits by the Institute of Inspection, Cleaning and Restoration Certification (IICRC). IICRC registrants who complete the three and a half day course will receive two points in the IICRC's cleaning/restoration category. ➡ www.buildingscienceinstitute.com or call 800/255-3333 ... **Pure Air Control Services** of Clearwater, Fla., has announced that it has entered into a contractual agreement with the General Service Administration's Federal Supply Services (GSA FSS) to provide federal agencies with indoor environmental quality (IEQ) services. Not only will these IEQ Services be used to proactively address indoor environmental issues, but the company will also work to resolve concerns associated with indoor mold and bacteria created in the Gulf States Region by Hurricanes Katrina and Rita. ➡ www.pureaircontrols.com or call 800/422-7873 ...

MERGERS AND ACQUISITIONS

PDG Environmental Completes Acquisition of Flagship Services Group

PDG Environmental Inc. of Pittsburgh, a specialty contractor that provides mold remediation and other services, has acquired the assets and operations of Arlington, Texas-based Flagship Services Group, a leader in both large and specialty loss repair and reconstruction. Flagship's expertise includes the repair and reconstruction of damage caused by wind storms, fires and floods as well as mold remediation.

PDG did not release terms of the deal, but said the company's combined revenues could reach \$80 million.

The company has also opened new offices in Bakersfield, Calif., and Las Vegas, bringing the total number of PDG offices nationwide to 16. Both offices will provide the full range of PDGE services including emergency response, reconstruction and mold and asbestos abatement.

➡ www.pdgc.com or call 800/972-7341.

COMPANY NEWS

Los Angeles Company Ordered to Stop Selling Unregistered Pesticides

The U.S. Environmental Protection Agency (EPA) has ordered Los Angeles-based Morwear Mfg. Inc. to stop selling and distributing two unregistered pesticides, "MoldWash" and "MoldWash Household," products that claim to control fungus and mold.

The label and promotional materials for "MoldWash" and "MoldWash Household" claimed that the products could remove mold from household surfaces. Claims included: "eliminates dangerous molds such as stachybotrys and aspergillus;" and "proven to kill 99.9 percent of most molds in less than 5 minutes."

In May 2005, investigators from the California Department of Pesticide Regulation discovered that Morwear sold and distributed the two unregistered pesticide products. The company faces fines of up to \$6,500 per offense.

Inspectors from the Hawaii Department of Agriculture also found MoldWash being sold in Waipahu, located on the island of Oahu.

Under the Federal Insecticide, Fungicide and Rodenticide Act, products claiming to prevent, destroy, or repel pests, including molds and fungus, are considered pesticides and must be registered with the EPA.

During the EPA's comprehensive pre-market registration process, a company must first provide studies that

show that the product does not pose unreasonable risks to humans or the environment. The company must show additional data before a legal claim can be made that a product protects public health. The label of all EPA registered products must bear the EPA registration number, along with directions for use and safety precautions.

"When an unregistered product claims to kill mold and mildew, consumers might falsely believe they are protecting themselves against serious health problems," said Enrique Manzanilla, director of the Communities and Ecosystems Division in the EPA's Pacific Southwest Office.


➡ www.epa.gov/oppad001.

EAU Advances Empowered Water Technology into Mold Remediation Industry

Electric Aquagenics Unlimited Inc. (EAU) of Lindon, Utah, has announced favorable results of protocol studies for the use of Empowered Water™—an electrolyzed oxidative water technology—in mold remediation. EAU has been working with an insurance restoration company and Restoration Sciences LLC to define the protocol.

Results of a year-long study under the direction of Dr. Bruce Lantrip and Dr. Gene Cole of Restoration Sciences demonstrated reductions of mold counts on both contaminated surfaces and in air using multiple EAU technologies to establish a new system of removing mold without the use of toxic chemicals. In one of EAU's documented applications, mold counts were taken from 42,000 parts per cubic meter to 254 parts per cubic meter, all without toxic exposure to the worker, the consumer or the environment.

EAU has used Empowered Water to successfully treat mold in homes and commercial office buildings in Utah and California for the past five years, according to a company news release. However, the company has announced it is awaiting recognition from a national certification body before marketing its technology. Currently under discussion is a definitive business agreement to market EAU's technologies to the carpet and mold remediation industries, as well as to the flood and fire restoration industries.

➡ www.eau-x.com or call 801/443-1031. 





MISSISSIPPI:

Attorney General Files Complaint Against Insurance Industry

On September 15 Mississippi's Attorney General Jim Hood filed a civil action lawsuit against the insurance industry seeking to declare "void and unenforceable" certain provisions in Mississippi Gulf Coast residents' property casualty insurance policies that exclude coverage from damage caused by Hurricane Katrina (see related story, page 26).

The lawsuit has targeted Mississippi Farm Bureau Insurance Co., State Farm Fire and Casualty, Allstate Property and Casualty Insurance Co., United Services Automobile Association and

Nationwide Mutual Insurance Co. The complaint states that these five companies "did business in the State of Mississippi and made contracts ... that the defendants knew would be substantially certain to cause injury to the State and to persons within the State."

The complaint asks the court to declare that certain insurance contract provisions are void and unenforceable. At issue are provisions that attempt to exclude coverage for losses or damage caused by water, whether



The discrepancy over whether Katrina's wind-driven rain or storm surge caused flooding has led Mississippi's Attorney General to sue five insurance companies.

or not driven by wind. Flooding, in this case as a result of the storm surge following Hurricane Katrina, is typically excluded from homeowner insurance policies, although damage as a result of hurricane winds is not. The complaint states that these provisions should be strictly interpreted against insurance companies that drafted the insurance policies and their exclusions. The complaint also states that the issuance of such insurance policies violates the Mississippi Consumer Protection Act.

"I'm hopeful that ... we will be able to stop unscrupulous insurance adjusters from requiring people to sign away their rights to 'flood damage' claims in exchange for a significantly smaller amount which will be used for immediate living expenses," Hood said.

The insurance industry has predictably reacted with outrage, although consumers have also been torn over whether the lawsuit will help or harm Mississippians in the long run.

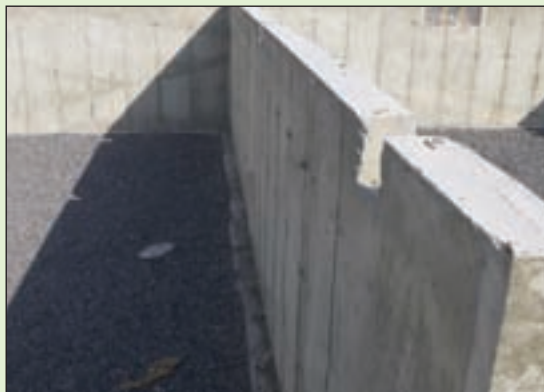
A statement from the Property Casualty Insurers Association of America (PCI) said the lawsuit will, if successful, destroy the viability of all insurance policies in the state.

"Our economy is based on the sanctity of legal contracts," said

COLORADO:

State Sees Largest Residential Defective Construction Settlement

D.R. Horton, a Fort Worth, Texas-based residential construction company, has paid a \$39.5 million settlement to resolve a defective construction lawsuit brought by condo owners in a Superior, Colo., subdivision. According to an article in the Rocky Mountain News, the payout is the largest-ever residential defective-construction settlement reached in Colorado.



Cracked foundations and roof problems allegedly led to mold growth in a 43-building condominium complex.

The suit was filed in 2003 by the subdivision's homeowners association. The suit alleged that cracked foundations and roof problems led to water damage and mold growth. The homeowners' complaint stated that the foundation defects were a result of constructing the homes on bentonite, a soil that expands and leads to cracked foundations. Drainage problems that in some cases rotted floor joists were also alleged.

Lawsuits still remain between Horton and its contractors.

Ernie Csiszar, president and chief executive officer of PCI. "Insurance policies are legal contracts with specific policy terms and conditions that have been reviewed by regulators in each state. The flood loss exclusion in homeowners' policies is clearly worded, has existed for decades and has withstood previous legal and political challenges. We're outraged by this attempt to retroactively rewrite policies so that every risk will be covered, regardless of the cost to millions of American consumers."

The American Insurance Association (AIA) agreed that it is not appropriate to force any insurer to pay claims for losses beyond the scope of their contract, as many believe the attorney general's lawsuit seeks to do.

"The attorney general must well know that, for more than 35 years, flood insurance principally has been the responsibility of the federal government under the National Flood Insurance Program (NFIP)," said AIA Southeast region vice president Cecil Pearce. "This program has been available to Mississippi homeowners and businesses in flood-prone areas. What the attorney general's lawsuit attempts to do is rewrite private insurance contracts retroactively for those individuals and businesses that chose not to buy flood insurance from the federal government's flood insurance program. This would inject tremendous uncertainty into the insurance system, which relies on predictability and certainty in order to function for the benefit of policyholders."

Csiszar pointed out that insurers have historically excluded flood damage from most standard homeowners insurance policies because of the potential for catastrophic, widespread and repeated losses.

"All that the people have left is

hope and I'm not going to allow an insurance company to wrongfully take that hope away. Although some insurance companies are trying to do the right thing, I won't allow the others to take advantage of people hurt by Hurricane Katrina," stated Hood. "I want to encourage the people to continue to fight and I'll do everything I can to make sure that insurance companies pay what they owe."

ILLINOIS:


University of Illinois Sues for Cost of Mold Remediation

The board of trustees of the University of Illinois has filed a lawsuit to recover the cost of remediating mold growth and making repairs in a student residence hall on its campus. The case, *The Board of Trustees of the University of Illinois v. Walsh Construction Company of*

Illinois, et al., was filed in April against Walsh Construction Co. of Illinois, the general contractor on the project; Travelers Casualty and Surety Co. of America, Walsh's insurer; Solomon Cordwell Buenz & Associates Inc. (SCB), the building's architect; Primera Engineers Ltd., the HVAC designers; Thermolock Mfg. LLC, the window manufacturer; and Seigle's Inc., the distributor of the windows.

According to documents from the Cook County District Court, the suit alleges breach of contract, breach of warranty, breach of guarantee, products liability and negligence relating to defective construction, services and products used in the construction of Marie Robinson Hall.

The documents state that that the hall was opened in August 2001 as housing for 350 students. Beginning in the summer of 2003, the board of trustees became aware of water infiltration, moisture accumulation and resulting mold growth in some parts of the building. By June 2004, the plaintiff was aware of systemic problems with the building, including water infiltration, moisture accumulation, degradation and loss of efficiency of building materials and resulting mold growth. As a result of the dormitory's condition, the school closed the hall beginning with the fall 2004 semester. Students were relocated to other private housing.

The board of trustees has requested an amount, to be determined at trial, in excess of \$30,000 to cover the costs of remediating the building, repairing or replacing the faulty equipment and relocating the students. 



To recover the cost of mold remediation in one dormitory, the University of Illinois has sued its insurance company and the architect and contractors involved.

Catastrophe Response



Mold Remediation Companies Flood the Gulf Coast Following Hurricane Katrina

By Megan Headley

photo courtesy of LVI Environmental Services Inc.

During the last week of August, many mold remediation and water damage restoration companies were doing what they routinely do at this time of year: moving equipment and people into place to prepare to restore homes and businesses after the looming hurricane. Then, on August 29, Hurricane Katrina hit. Cities along the coasts of Alabama, Louisiana and Mississippi were laid flat by the Category 4 storm, which had wind speeds as high as 150 miles per hour. New Orleans was submerged underwater when the high winds and rainfall caused the city's levees to break. Hundreds of peoples lost their lives; thousands lost their homes.

Picking up the pieces of buildings and lives devastated by Katrina will take years. But as the process of recovery

begins, many mold remediation and water damage restoration companies are trying to do what they routinely do at this time of year—restoring homes and businesses after a hurricane—while adapting to the challenges left by Katrina that have made this year different.

Help Arrives on the Coast

Shortly after the full impact of Katrina was felt by Gulf Coast residents, help arrived. While donations poured in from all over the country, so too did restoration and remediation companies working to make homes livable and businesses operable once again.

Larger companies were able to mobilize workers from other locations across the country to focus on the Gulf Coast disaster. Many of these companies had been



Hurricane Katrina has already been named the costliest hurricane to ever hit the United States. Remediation companies from as far away as California responded when Katrina devastated the Gulf Coast.

on the scene since before the disaster struck, preparing, more or less, for “business as usual.”

LVI Environmental Services Inc. of New York brought approximately 2,150 workers into the Gulf Coast region to work on Hurricane Katrina clean-up and restoration projects. LVI began large-scale clean-up projects at hospitals, hotels, resorts, retail outlets, municipal buildings and businesses in Louisiana and Mississippi, and Texas after Hurricane Rita hit in September.

Dale Sailer, president of Disaster Kleenup International Inc. (DKI) of Bensenville, Ill., said of his team, “We’re spread out throughout the Gulf.”

“They said Andrew was the worst thing they’ve ever seen for total devastation,”
 said Greg Frith with Fireservice Disaster Kleenup of his associates working in Louisiana and Mississippi. **“Then said Katrina was ten times worse.”**

“We’ve got a few projects in Louisiana, a few in Mississippi,” said Shawn Regan, director of business development for PDG Environmental Inc. of Pittsburgh.

With teams prepared in some cases even before the storm touched Louisiana, remediation experts are now taking part in discovering what in the region is salvageable and what can only be replaced.

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Catastrophe Response

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Left Behind by the Storm

In many cases, water removal and restoration efforts couldn't begin immediately after the storm had passed, due to the extent of the damage. In those days just after the storm, with houses dripping or still flooded, mold began growing.

"If you can't get in for four days you can be assured you've got mold," said David King, senior vice president of Disaster Services Inc. (DSI) in Baton Rouge, La.

Mold growth has flourished due to moisture from the rain, flooding and storm surge, a humid climate and lack of air conditioning.

King added, "They have such a high humidity moisture area anyway, naturally down there. After they got the trees out of the way, we got in and everything was already molded."

The First Steps

According to Regan, the first step has been "assessment of what the damage was." Next, he suggested, "Put a temporary roof on it, any temporary repairs that can be made to that structure. Then if you're there early enough, structural drying, removal of wet building materials—your carpeting, drywall—and of course in the event that there is physical mold growth, there is that [to remediate] as well."

"We're performing structural drying to prevent mold contamination, but there's obviously a lot of contamination already," said Michael O'Reilly, president and chief executive officer of Windswept Environmental Group Inc. of Bay Shore, N.Y.

In these early stages, remediation work has focused on area businesses.

"All the work is commercial and institutional, school districts," said Regan. "The commercial work we are

Need to share Katrina stories with your colleagues?

Visit the Moldmag Message Forum at www.moldmag.com and post your thoughts, questions and concerns on this and other topics.

doing is multi-family complexes and hotels, and a few industrial projects as well."

With some businesses, particularly those in New Orleans, already permanently relocating to areas such as Houston, getting commercial structures operational will be a big first step in rebuilding communities.

"We're on the ground now working to help rebuild the business and commercial infrastructure that is necessary for the citizens to reestablish their livelihoods after this unprecedented disaster," said Burton T. Fried, president of LVI.

Another reason for this focus on the commercial, King added, is that businesses are able to afford repairs homeowners can't yet manage.

"The sad fact is that your homeowners' insurance won't cover it, nine times out of ten," said King. "And a lot of [the insurance companies], even though they're advertising that they're there to help, very few of them can get in. They don't have lodging for their people to come in" (see related story in *Insurance Watch*, page 46).

King said that commercial buildings are having the same problems with insurance, but with businesses offline leading to shortages across a variety of industries and money being lost, "they're motivated to get their businesses back up and running."

Just because remediation experts are used to responding to catastrophes, however, doesn't mean there haven't been big differences and challenges left behind by Katrina.

Top Five Costliest Hurricanes to Hit the U.S. (Pre-Katrina) (\$ millions)

Rank	Date	Location	Hurricane	Estimated Insured Loss	
				Dollars When Occurred	In 2004 Dollars ¹
1	1992, Aug. 23-24, 25-26	FL, LA, MS	Andrew	\$15,500	\$20,869
2	2004, Aug. 13-15	FL, NC, SC	Charley	7,475	7,475
3	2004, Sep. 16-21	AL, FL, GA, OH, PA, NY, NC, 8 other states	Ivan	7,110	7,110
4	1989, Sep. 17-18, 21-22	U.S. Virgin Islands, PR, GA, SC, NC, VA	Hugo	4,195	6,391
5	2004, Sep. 5	FL, GA, SC, NC, NY	Frances	4,595	4,595

¹Adjusted to 2004 dollars by the Insurance Information Institute.

Source: ISO; Insurance Information Institute.



photo courtesy of LVI Environmental Services Inc.

Many remediation companies focused first on repairing the business and commercial infrastructure necessary for helping to rebuild communities.

Unique Katrina

“They said Andrew was the worst thing they’ve ever seen for total devastation,” said Greg Frith with Fireservice Disaster Kleenup of his associates working in Louisiana and Mississippi. “Then said Katrina was ten times worse.”

Sailer noted, “Nobody got shots last year (for tetanus, diphtheria, and hepatitis B) ... It’s more like going into a war zone than going into your typical catastrophe response.”

Sailer noted that although the preparation process was the same for Katrina as it was in 2004, when DKI prepared for the chain of hurricanes that battered Florida, the damage left by the hurricanes were drastically different.

“In Florida last year, what is very different in terms of the response is that the storm came through, did its damage and there was roughly zero standing water,” said Sailer. “You may have had a home reduced to slab but you didn’t still have water all over the place. New Orleans, two weeks later, was still flooded. That doesn’t happen anywhere else. Our folks haven’t had to deal with that in the same way.”

“The clean-up from last year’s hurricanes in Florida is a small fraction of the work that will be necessary this time, as property owners are still evaluating exactly how bad their situation is,” Fried added.

The amount of devastation has also meant big problems in getting relief efforts close to areas where

help is needed.

“The biggest problem is lodging just because of the amount of evacuees, the amount of relief workers that are coming,” Regan said

Larger companies have been able to bring in housing for their workers. To accommodate its work force, LVI has 20 mobile sleepers just outside of New Orleans that can house 840 of its workers. The sleepers are equipped with their own power sources, air conditioning and heating. The company has also deployed its own diesel fuel tanker truck to keep its equipment operating.

Because of the business opportunities that the Gulf Coast has presented, even smaller remediation companies are looking into investing in trailers, which they expect will be quickly paid off because of the demand for mold remediation workers.

Running Rampant

Because many residential problems will go unchecked for extended periods of time, mold will be able to run rampant through homes.

In instances where remediation professionals have been able to get to work, shortages have hindered their efforts there too.

“There’s not enough generators in the country,” said Frith. “After those four storms last year and two

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Catastrophe Response

continued

storms this year, it's going to be tough to find anything."

"There was a run on dehumidifiers in the industry," said Sailer. "You need dehumidifiers when your primary task is to decrease the humidity level, to dry out buildings. That has morphed in the last week [in September] to a run on air scrubbers, when you need to clean the air, not just dry it, because mold is growing."

Manufacturers of remediation products have felt the squeeze as well.

"Our production since Katrina has put us in a position of working around the clock," said Nancy Ewing, vice president of marketing and sales for Anabec Inc. of Clarence, N.Y. The company also manufactures a mold prevention product that Ewing expects will be much in demand once the rebuilding process starts.

The biggest demand, however, has not been for products but for services.

Good Help Wanted

Because of the scope of the problems, Sailer says there are simply not enough professionals available—yet—to provide timely remediation services for everyone.

"Because of the qualifications, skills and training necessary to do proper mold remediation ... there are less of those people than just those who do water damage, and there are fewer of them than people who just do reconstruction. There are not enough of any of those three trade categories to do all of this work in a period of time that will be satisfactory for anybody," Sailer said. "That is a reality, and that is not the tradespeople's fault. They will be criticized just because that will happen. There will be people with damaged property who for six months will not get a return phone call from a qualified contractor."

This demand for services is also exacerbating a problem already plaguing the industry: those untrained, unqualified individuals who offer their services as mold remediators.

Some companies qualified for restoration have broadened their focus to include mold remediation.



It only takes 48 hours of moisture for mold growth to occur. Mold had weeks to colonize in New Orleans' abandoned homes.

However, without proper mold remediation licensing from the State Licensing Board for Contractors, taking on remediation work is illegal in the state of Louisiana.

Since July 2004, the state has required any and all persons who make an offer to bid on or contract projects requiring mold remediation services to hold a mold remediation contractor's license with the board. Out-of-state contractors requesting waivers for in-state licensing are required to complete a license verification form and submit it to the board of the state in which they are licensed. That state board will then complete the form and submit it to the Louisiana board.

Mississippi does not have, as of yet, mold remediation laws.

"What customers need to look for in a company is how long they've been in business, how long they've been performing this kind of work, if they've got the right insurance, proper licensing, bonding capacity," said Regan.

In addition, homeowners have been warned to beware of mold scams as they return to their homes. Mississippi Attorney General Jim Hood issued a warning in September to Gulf Coast residents to be on the look-out for scam artists posing as inspectors for the Attorney General's office.

"I think when you get an event like this there's always opportunity for unscrupulous individuals looking for that kind of opportunity," said Regan.

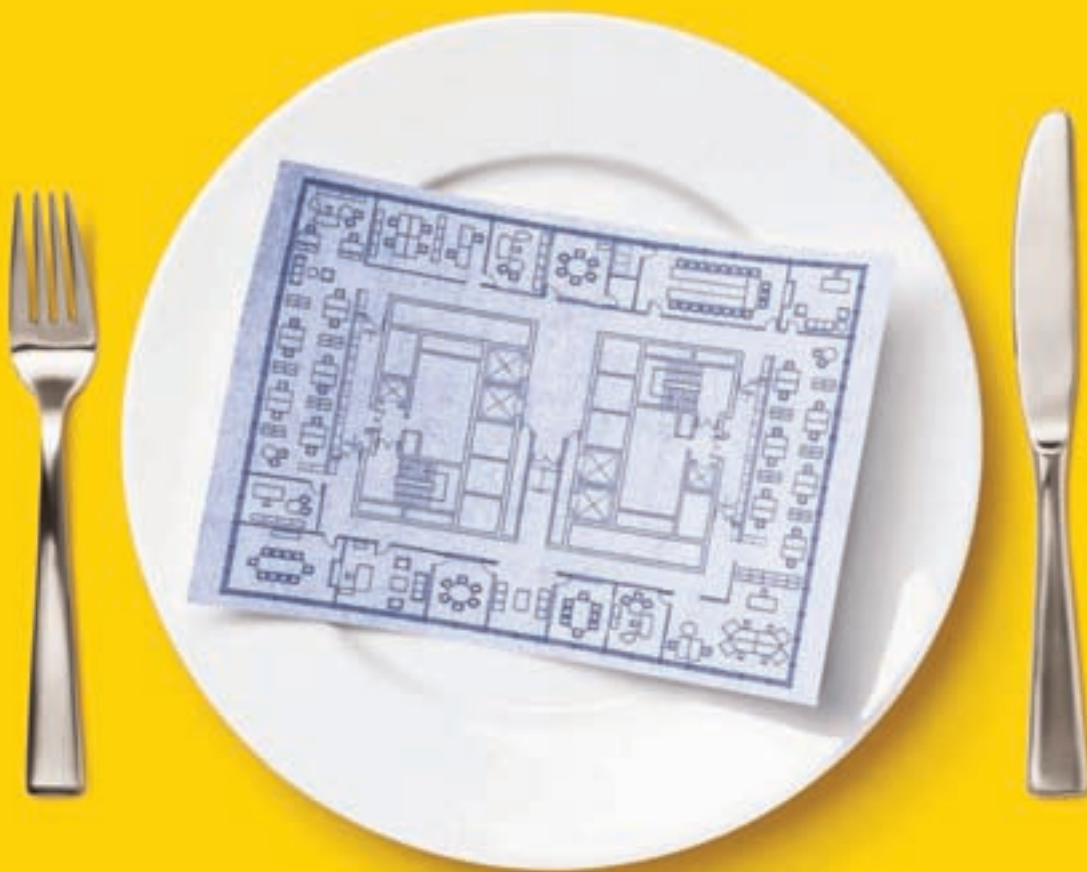
"If you can't get in for four days you can be assured you've got mold."

—David King, Disaster Services Inc.

continued on page 32

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Catastrophe Response

continued

Moving Forward

Since Katrina has already been dubbed the costliest natural disaster in U.S. history, it is evident that the process of rebuilding will occupy the region for years to come. News reports have captured many displaced residents' plans to rebuild, and many more plan to relocate permanently to higher grounds. For those businesses that do move away, there will be others that come to offer their services, shifting the economic landscape as much as the physical one.

LVI has opened a new 27,000-square-foot office and warehouse facility in Saint Rose, La., just outside of New Orleans, in support of the company's remediation activities in New Orleans and Gulfport and Biloxi, Miss.

PDG is also looking to expand into the area.

"We are currently looking for an office based in New Orleans," Regan said.

Windswept Environmental Group, through its Trade-Winds Environmental Restoration subsidiary, is in the process of opening an environmental training center in Baton Rouge, La. The new center will offer mold remediation training, as well as training for hazardous materials remediation, to Gulf Coast residents who are out of work as a result of Katrina.

The Long Road to Recovery

The training program is not unusual for Trade-Winds, according to O'Reilly.

"We did a bunch of mold training in Florida last year, but we already had an established facility there. This is different because we've had to establish a facility to meet the expected demand," said O'Reilly.

O'Reilly added, "We are very pleased to be able to provide any assistance in getting people back on their feet so they can begin the recovery process."

Estimated Cost of Property Damage Losses from Hurricane Katrina

New Orleans Flood Loss	\$22.6 billion
Louisiana Storm Surge Loss	\$16.2 billion
Mississippi Storm Surge Loss	\$4.4 billion
Alabama Storm Surge Loss	\$793 million
Florida Storm Surge Loss	\$32 million
Total Losses	\$44 billion

Source: AIR Worldwide Corp.



AP Photo/Kevork Djiansejian

Dehumidifier tubing runs into a University of New Orleans building to help prevent the spread of mold as a work crew from South America prepares to enter.

Despite all of the effort being made to rebuild the Gulf Coast, through clean-up, restoration and donations, recovery following Katrina will not be an easy process.

Putting the reconstruction process in perspective, Regan related that as of a visit to Florida at the end of September, reconstruction crews for PDG were just finishing up a project that had been waiting for repairs since it was struck by Hurricane Charley in August 2004.

King, located in the heart of Louisiana, is not only working but living close to the disaster zone. From his bird's-eye view, he gave his grim prediction about how long the clean-up efforts will be required:

"Years."

 Megan Headley is editor of Moldmag.

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Please send any additions or corrections to Penny Stacey at pstacey@moldmag.com.

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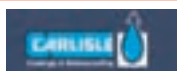
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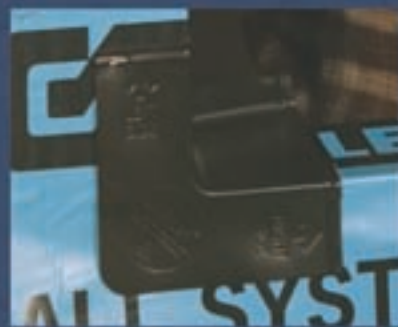
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Reducing Risks FROM MOLD AND IAQ EXPOSURE



EPA Support Expands EEF Mold and IAQ Training and Communicates a New Set of Standards to Mediate the Mold Crisis

by Troy E. Johnson

Mold is not just for Jell-O anymore. It has become the province of litigators, insurance companies, real estate interests and the web of enterprises that feed this increasingly critical issue. As a consequence, the Environmental Protection Agency (EPA) has advanced to the front lines of what may prove to be pitched battles against the money-absorbing forces that mold has brought to bear.

Indoor air quality (IAQ) defines the current boundaries of activity. With a scope of consequences ranging from billions of dollars in remediation and litigation, to

the need for changing standards and practices at several industries, down to the individual homeowner, the government is campaigning to bring sense and clarity to the quite literally growing mold crisis.

"We need these standards to deal intelligently—and with confidence and thoughtfulness—with mold and the constituent issues that so affect various industries,"

—Mary Ann Lazarus, AIA, advisory group member and sustainable design coordinator at HOK



EEF's mold training supports the EPA's IAQ guidance in encouraging good practices for mold remediation.

As part of the battle joined, the Environmental Education Foundation (EEF), a non-profit educational corporation based in Gilbert, Ariz., has received a contract from the indoor environments division of EPA to gain support for EPA's indoor air quality guidance and encourage its use as part of EEF's current mold and IAQ management plan and training.

"This creates a great opportunity to encourage the use of good practice protocols both for mold prevention and remediation, and for other IAQ issues, that are provided in this EPA guidance," said David Mudarri, of the indoor environments division of EPA.

This initiative has the potential to be industry-changing from our perspective. The EPA guidance, combined with EEF training, operation and maintenance plan development and continued updates

At left: EEF director William Warren joins a panel of lenders at the National Mortgage Lenders Conference to discuss the EEF IAQ management plan borrowers are required to have in place.

through EEF membership, is on its way to becoming an important standard for managing indoor air quality in commercial and multifamily residential buildings.

Seeking Acceptance

As part of this effort, EEF has built a consortium of participants from many affected industries, such as building design and construction and property management, as well as insurance and financial institutions. The training they receive is designed to cascade throughout this consortium and beyond, in order to standardize the most effective tactics against mold and its consequences. The training will focus initially on mold, but is expected to expand into other IAQ issues using EPA's guidance.

We feel confident that EPA's guidance will be communicated effectively and ultimately adopted by the various interests. Many of those interests appear to be already on board, agreeing with the principles of the consortium strategy as well as the details of the teaching. More than 30 companies and organizations are currently in this group of shared interests led by EEF, but the foundation maintains that its invitation to others remains an important fixture. Progress towards standardization is advanced by inclusion.

"We need these standards to deal intelligently—and with confidence and thoughtfulness—with mold and the constituent issues that so affect various industries," said advisory group member Mary Ann Lazarus, AIA, sustainable design coordinator at HOK, a global architectural design and services company. "Certainly this has become a costly and time consuming problem for multi-family housing and commercial builders, owners and managers who operate with no clear rules of governance."

Thomas Clay, chief executive officer and founder of the National Indoor Air Quality Institute, said, "The considerable effort laid out by the EPA sharpens the focus on mold and helps plumb the depth of the problem in an orderly fashion. For years there has been a free-for-all among states dealing with local regulation or its absence; with court decisions unsupported by precedent; with the expensive quandaries of builders; and the uncertainty of effective remediation at predictable prices. This atmosphere protects no one's interests. Developing a tablet of standards for all to use as a guide, however, certainly does."

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EPA's New Tools for Promoting IAQ



There are three parts to the EPA training that will be adopted by EEF.

The EPA's Indoor Air Quality Building Education and Assessment (I-BEAM) software offers guidelines on how to manage IAQ in commercial buildings. Using text, visuals and interactive components, the educational tool teaches builders how to conduct an indoor air quality (IAQ) building audit; diagnose and resolve IAQ-related health problems; establish an IAQ management and maintenance program to reduce IAQ risks; plan IAQ compatible energy projects; protect occupants from exposures to construction/renovation contaminants; and calculate the cost, revenue and productivity impacts of planned IAQ activities.

In addition, EPA has developed a draft training module for building professionals, *Integration of Indoor Air Quality and Energy Efficiency in Well Managed Buildings*, designed to protect indoor air quality during energy efficiency retrofit programs. The training is based on the 5-stage ENERGY STAR® program. At each stage, guidance is provided to integrate indoor air quality protections into the planning and implementation of energy retrofits. One goal of the test program is to make the training module available on the internet as a self paced training course, with at least one instructor-led delivery.

Another part of EEF's responsibility under its contract with EPA is to assemble a group of building industry representatives, including representatives from building design/construction and lending and insurance and property management interests, to review EPA's draft of its *IAQ Green Building Guidance*. A major part of the review will focus on how practical the guidance will be to implement. Upon approval by EPA, EEF will then use its research to develop a program that seeks the insurance and financial sectors of the building industry's acceptance of the guidance as a means of environmental risk management. The guidance will be promoted to those members of the industry seeking to build or manage high performance or "green" buildings.

Reducing Risks

CONTINUED



EEF director Richard Bates addresses the audience on the new IAQ operations and maintenance plan and training at a joint ASTM and EPA meeting.

Insurance Interests

The insurance industry is among those most influenced by the convergence of mold damage and an uncertain standard of approach. With literally billions of dollars at stake in protecting real estate owners, and with a lack of consensus on the scope of the issues and predictable costs, insurers have been hit hard and as a consequence, many have retreated from issuing policies that contain complete coverage. This has had a slowing effect on many construction projects.

"This has been a worst-case scenario for the insurance industry," said Mark J. Richard, the environmental practice leader at Rutherford Insurance. "There have been too many cost unknowns and liability questions to deal with so the industry has turned very conservative in developing the language for policies."

EEF efforts have brought together, in addition to builders and others, major stakeholders in the management of air quality issues including mortgage bankers and insurance carriers. Already, our program is recognized by major insurance carriers for meeting underwriter requirements for obtaining pollution insurance that includes mold coverage. The commercial building owners and property managers who want to obtain mold insurance for their buildings can take the EEF course and become a member of the organization. In addition, the course is also being used by lenders as a requirement for their borrowers to have in place, such as real estate investment trusts (REIT) for both risk reduction and to demonstrate the REIT managers' fiduciary responsibility. Further, the course guides attorneys involved with the "standards of care" and a myriad of IAQ-related professionals as the new guidelines in the industry.



Troy Johnson, executive director of EEF (left), has found support for EEF's training program from Todd Marans, chief underwriter of PNC Multi Family Capital, and Julie Tyler, also with PNC.

A Growing Problem

It is now generally recognized that mold causes a variety of respiratory ailments, and this realization alone has fed the seriousness of the issue. Since there is no practical way to eliminate all mold from the air, limiting its presence through use of recommended building materials and moisture reduction is critical. These and similar points are covered in many of the numerous websites that have been built around the issue. They range from the Allergy & Asthma Network/Mothers of Asthmatics to the Canada Mortgage & Housing Corporation. Though diverse at first glance, these organizational sites all funnel into the problems associated with mold, whether health-related or financial.

A search on Google reveals about 2.9 million of these websites reciting mold data. The prolific writing and advice on the web and elsewhere is less a commentary on the fecundity of the Internet than it is on the dimensions of the festering problem. Hundreds of schools around the nation have been closed awaiting clean-up after mold was discovered; hospitals are not immune either, despite rigorous and frequent cleaning.



Building design, construction and property management professionals are part of the group EEF is seeking support from, standardizing the most effective tactics against mold.


Lawsuits abound and many already have been won on behalf of residents of infected buildings, some of whom claim ill health effects. Money lenders are skittish over their investments in properties that may not pass muster or be granted insurance during a search for mold or similar defects in need of remediation. Values of real estate have thus been adjusted down in scores of cases; settlements have cost hundreds of millions; building standards have been altered and are more rigorous when it comes to the types of materials that should be used to discourage mold growth. Remediation experts—too often without proper skills, or licensing and/or registration—to deliver on promises, have expanded into the advent of an unregulated industry.

Michael A. McGinley, P.E., representing the Air & Waste Management Association, a nonprofit professional organization with more than 9,000 environmental professional members in 65 countries, offered an expert's-eye-view of the issues.

"We need to make sense of the entire problem, from how best to minimize mold to agreement on the best ways to rid a building of it," said McGinley. "Only then can insurance companies understand their liabilities and set fees and policy language

accordingly; only then can we have guidance on the best practices for prophylactic approaches and clean-up. The EPA guidance will give us the standards we all need and the priorities we must set to get ahead of this invasion of sorts."

Training in Development

Moving on to the next phase of work for the EPA, EEF is developing a training component targeting insurance carriers and brokers, including financial risk managers, that will educate building clients on the proper management of IAQ. The program will combine the EEF training program and EPA's I-BEAM software. The concepts populating this training component will be constructed with the help of an advisory group representing the building industry. In this way, buy-in is virtually assured since those who will utilize the standards have a say in how they're implemented according to the practical needs of their businesses. Effectiveness and adoption therefore, becomes an intrinsic feature of the module given the nuanced knowledge contributed by this group. 

 **Troy E. Johnson** is executive director of the Environmental Education Foundation.

Resources:

For more information about the Environmental Education Foundation, visit www.enviro-ed.org or call 480/659-9356.

Builders can currently download I-BEAM from the web by visiting www.epa.gov/iaq/largebldgs/download.htm. To obtain a copy on CD, or for more information, call 800/438-4318 or email iaqinfo@aol.com and ask for EPA 402-C-01-001.



RESEARCH

Team "Investigates" Investigation Techniques

At the American Industrial Hygiene Association (AIHA) Convention and Expo in May, Gary Crawford with Boelter & Yates Inc. of Park Ridge, Ill., presented a study on *Invasive and Noninvasive Investigation Techniques for Mold-Infected Wall Cavities*. The study determined that culturable air sampling is, to an extent, an effective technique for screening tests when compared to spore traps. The study also examined how indoor air quality is impacted by invasive investigations.

Crawford explained that the team of researchers built a chamber to enclose wall sections that simulated exterior insulated and interior non-insulated walls. Some portions of each wall were left exposed; others were covered by wallpaper, baseboards and trim. Water was injected into the wall panels and mold was allowed to grow undisturbed for 37 days, with ambient air samples collected every 10 days. Air samples were also collected during invasive investigations of the walls.

The study concluded that spore traps are, to some extent, effective in detecting hidden mold during the early stages of growth. However, high concentrations of mold spores and particles were released when holes are drilled or cut in the walls. Sampling showed that approximately 90 minutes after work had been completed, the spore counts jumped.

The study also determined that mold growth was most abundant in insulated walls with wallpaper. More moisture was found in the drywall with insulation than that without insulation, and higher up the walls. Crawford noted that little or no mold was generally found on the

Eighth-Graders Uncover Possible Link to School Mold

What started out as an eighth-grade science experiment at a Chesapeake, Va., school turned into an alarming discovery for the students: turning down the school air conditioning system during nights and weekends was creating conditions suitable for mold growth in dozens of classrooms.

A group of eighth-grade students at the Great Bridge Middle School caught the attention of school officials recently by establishing a link between HVAC system usage, classroom humidity levels and mold growth. The students recorded temperature and humidity in 30 individual classrooms throughout the school using donated data loggers and accompanying software to generate time-stamped graphs that compared humidity levels during and after normal school hours. IScienceProject offers free loans of HOBO® data loggers to K-12 teachers in the U.S., and an interactive website where students and teachers can download more than 100 free classroom labs.

➔ www.iscienceproject.com.



Using donated data loggers, a group of eighth grade students found a link between its school's HVAC system usage and mold.

exposed walls, but was abundant under wallpaper, baseboards and trim. The highest concentration of mold was found in cavities that had both insulation and wallpaper.

According to Crawford, further research is needed to evaluate air sampling as a screening tool when the hidden mold growth is more mature and when there are air pressure differentials across the test walls.

TECHNOLOGY

Study Aims for Mold Index

At a session during IAQA-AmIAQ-IESO 2005, in October, Steve Vesper of the U.S. Environmental Protection Agency (EPA) presented information on a current study that he hopes will form the foundation of an EPA Relative Moldiness Index (ERMI®).

Vesper explained the study's goal simply: "What we'd like to do is establish a national [mold] index."

The foundation of the national index is a molecular method of identifying mold used in 12 laboratories in the United States. Mold specific quantitative polymerase chain reaction (MSQPCR) technology uses a DNA probe unique to each of the targeted indoor molds to identify and quantify concentrations.

According to Vesper, microscopic identification and counting is basically impossible for most species, and cultures are often inaccurate due to overcrowding, varying requirements for growth for each mold and other reasons. MSQPCR, on the other hand, is objective, accurate and fast—it takes only three hours, in comparison to the

days or weeks it takes to receive information on a sample from a microscopic or culture technique.

Vesper described studies performed in Cincinnati and Cleveland in which numerous dust samples were taken from “moldy” homes and reference homes with no visible mold damage. According to Vesper, the MSQPCR method determined that there was no statistical difference in the total populations of molds in these homes. Instead, the researchers identified certain groups of molds present in the water-damaged homes and not the reference homes.

For instance, in the Cincinnati study six species defined the moldy homes—called Group I species by


the researchers—while an additional ten species—Group II species—were found in the normal homes.

“You can’t remove all mold, which is why it was so critical to identify Group I molds,” Vesper said.

He emphasized that no one single species of mold could be considered an indicator, because every home is different. He expects that the molds that make up Group I species will change in a national study, but he is aiming to get one number that can be used nationally as an indicator.

“Our working hypothesis is that Group I molds are associated with certain health problems, such as asthma,” said Vesper. He added that in the water-damaged homes

in the study, “Removing the mold they were able to reduce the medical intervention for asthma ten-fold.”

More studies across the United States will be required to determine trends needed to create the ERMI. The EPA is undertaking the nationwide study. 



ERMI relies on the **MSQPCR technology** because, according to **Steve Vesper** with **EPA**, microscopic mold counting is often inaccurate.

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Katrina Losses Estimated at \$34.4 Billion

U.S. property/casualty insurers will pay an estimated \$34.4 billion in insurance claims to help victims of Hurricane Katrina rebuild their homes and businesses, making this storm the costliest U.S. catastrophe ever, according to preliminary estimates by Insurance Services Office's (ISO) Property Claim Services (PCS) unit.

Katrina caused widespread damage to homes and businesses in six states—Louisiana, Mississippi, Alabama, Florida, Tennessee and Georgia—according to a news release from ISO, although New Orleans bore the brunt of the hurricane's

fury. Policyholders in the affected states are expected to file more than 1.6 million claims for damage to personal and commercial property, automobiles and boats and yachts.

At an inflation-adjusted \$20.8 billion, Hurricane Andrew in 1992 was the costliest catastrophe in the U.S. until now.

Insurers are still assessing individual losses and analyzing various scenarios that will affect ultimate claim payments, according to PCS. Handling claims from this wide-ranging devastating event has been difficult for several

Breakdown of Insured Property Damage and Claims Count

State	Losses (\$)	No. of Claims
Louisiana	\$22.6 billion	900,000
Mississippi	\$9.8 billion	490,000
Alabama	\$1.3 billion	123,000
Florida	\$468 million	110,000
Tennessee	\$46.1 million	8,400
Georgia	\$22.2 million	3,300

reasons, including limited access to damaged areas, difficulty in tracking down property owners who evacuated to other locations and breakdown of the communication infrastructure.

New Oregon Law Provides Homeowners with Insurance Tools

A new Oregon law as of July 2005 is providing homeowners with information on how insurers decide why a building is uninsurable or rates may be negatively affected by claims made earlier in the building's history—and what they can do about it.

Under the new Oregon law, when a consumer applies for or renews a homeowner insurance policy, an insurer may not turn down the applicant based on any prior claim on the property if the date of loss of the claim was made more than five years before the date of policy application or renewal. The old claim can also not be used to determine rates or other terms and conditions of the policy. Moreover, the individual will be given the opportunity to prove that any damage that had resulted in an earlier claim has been properly mitigated and repaired.

In addition, before an insurance company denies an individual insurance, makes any change to a client's insurance rate or drops a client based on information from a loss history report, the insurance company must prove the information on the report is true and explain to the client how to obtain a free copy of that report.

Many insurance companies use loss history or Comprehensive Loss Underwriting Exchange (CLUE) reports (see *Winter 2005 Moldmag Insurance Watch*), which list a history of a structure's claims, to determine whether or not to insure a property. With the industry's

panic over mold, a property that had a claim filed for water damage ten years ago may even today be considered a high insurance risk.

The new legislation mandates that an insurer notify a consumer that they will be requesting a loss history report relating to the property to be insured. The insurer must also explain how the report is used and the procedures the consumer may use to obtain additional information.

In addition, when an underwriting decision that will affect a homeowner's insurance opportunities or rates is based in any way on a loss history report, the insurance company must explain to the consumer, in writing, the specific reason for the adverse underwriting decision. This move is intended to give the homeowner the opportunity to dispute the accuracy or completeness of any information in the report.



Oregon homeowners now have the opportunity to dispute insurance companies' decisions to alter or deny a policy, if the decision was based on a CLUE report.

Rising Mold Claims Prompt Builders to Use Materials with Warranty

Without traditional protection from mold-related homeowner lawsuits and remediation costs, many builders are turning to a new form of mold warranty.

The seven-year mold warranty from No-Burn of Wadsworth, Ohio, covers the homebuilder for all areas treated with No-Burn MIH, a non-toxic compound designed to deny fuel for fire as well as food for mold. The warranty, covering the homebuilder for up to \$50,000 in mold remediation-related costs, is the only



Spray-applied during the framing stage of construction, officials from No-Burn MIH say the product does double-duty in protecting homes from fires and mold.

insurance-backed risk mitigation tool available, according to a company news release.

"This warranty gives the builder peace of mind that evaporated when his traditional mold insurance disappeared," said Ken Rusk, vice president.

Builders of single-family homes, as well as multifamily apartments and condominiums with eight units or less,

can be covered by the warranty.

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1. Number of employees (at this location)

A ☐ 1-4 B ☐ 5-9 C ☐ 10-19 D ☐ 20-49 E ☐ 50-99 F ☐ 100+

2. What is your title? (Check only one)

A ☐ Chairperson, President, Owner, Partner
B ☐ Executive VP, Senior Manager
C ☐ Manager
D ☐ Remediation or Prevention Specialist
E ☐ Purchasing Director, Buyer
F ☐ Architect/specifier/engineer
G ☐ Homeowner/Consumer
H ☐ Other (please specify) _____

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3. Principle Business Activity at this location

- | | |
|---|--|
| <input type="checkbox"/> 1100 Building | <input type="checkbox"/> 2300 Waterproofing |
| <input type="checkbox"/> 1200 General Contracting | <input type="checkbox"/> 2400 Home Inspecting |
| <input type="checkbox"/> 1300 Remodeling | <input type="checkbox"/> 2500 Water Damage Repairing |
| <input type="checkbox"/> 1400 Architect/Specifying/Engineering | <input type="checkbox"/> 4000 Others allied to the field, (please specify) _____ |
| <input type="checkbox"/> 1500 Specialty Contracting (HVAC) | <input type="checkbox"/> 4100 Homeowner/Consumer* |
| <input type="checkbox"/> 1600 Building Owner or Manager | <input type="checkbox"/> 4200 Testing lab/Consultant* |
| <input type="checkbox"/> 2100 Mold Remediation Specialist | <input type="checkbox"/> 4300 Attorney* |
| <input type="checkbox"/> 2200 Air Quality Specialist/Industrial Hygienist | <input type="checkbox"/> 4400 Other Specialist* (please specify) _____ |

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Under contract from The Indoor Environments Division (IED) of the U.S. Environmental Protection Agency (EPA), the Environmental Education Foundation, with the support of the largest group of industry representatives ever assembled, has developed a New training program that focuses on a total risk management program for IAQ - Including Mold Management & Water Intrusion and the implementation of an Operations & Maintenance (O&M) Plan.

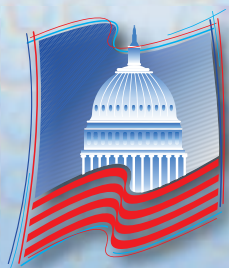
The EEF training, combined with ongoing support as an EEF member and NEW O&M plan are now being used by many major insurance carriers to meet certain underwriting requirements to obtain IAQ-related insurance.

For More information on availability of "on-site" or "on-line" training,
- or to join the EPA Advisory Group - contact:

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38	Water Out Inc.	866/568-0050	704/364-8829	www.wateroutflashing.com



Calendar

2006

January 12-14, 2006
6th Annual IAQ Tools for Schools National Symposium
 Grand Hyatt Hotel.
 Washington, D.C.
 Sponsored by the U.S. EPA.
 Contact: The Cadmus Group at 703/247-6194.

January 11-14, 2006
International Builders' Show
 Orange County Convention Center.
 Orlando, Fla.
 Sponsored by the National Association of Home Builders.
 Contact: NAHB at 202/266-8109.

January 11-14, 2006
InspectionWorld 2006
 Fort Lauderdale Convention Center.
 Fort Lauderdale, Fla.
 Sponsored by the American Society of Home Inspectors.
 Contact: ASHI at 847/954-3187 or inspectionworld@ashi.org.

January 23-25, 2006
2006 AHR Expo
 McCormick Place.
 Chicago.
 Co-sponsored by ASHRAE and the Air-Conditioning and Refrigeration Institute.
 Contact: AHR Expo at 301/694-5243.

February 26-March 1, 2006
AAMA 69th Annual Meeting
 Renaissance Esmeralda Resort.

Indian Wells (Palm Springs), Calif.
 Sponsored by the American Architectural Manufacturers Association.
 Contact: AAMA at 847/303-5664.

March 5-9, 2006
2006 NADCA Annual Meeting & Exposition
 Hyatt Regency Dallas.
 Dallas.
 Sponsored by National Air Duct Cleaners Association.
 Contact: NADCA at 202/737-2926 or info@nadca.com.

March 12-14, 2006
National Green Building Conference
 Albuquerque Convention Center.
 Albuquerque, N.M.
 Hosted by the National Association of Home Builders.
 Contact: Christopher Hood at 202/266-8684.

March 14-17, 2006
2006 ASCR Solutions Convention
 Westin Savannah Harbor Resort.
 Savannah, Ga.
 Sponsored by the Association of Specialists in Cleaning and Restoration.
 Contact: ASCR at larryj@ascr.org or call 410/729-9900.


April 12-13, 2006
An Executive View of Mold & Mold for the Construction Industry Short Courses
 Global Learning and Conference Center.
 Atlanta.

Sponsored by the Georgia Institute of Technology, Professional Education.
 Contact: Georgia Institute of Technology at 404/385-3500 or visit www.pe.gatech.edu.

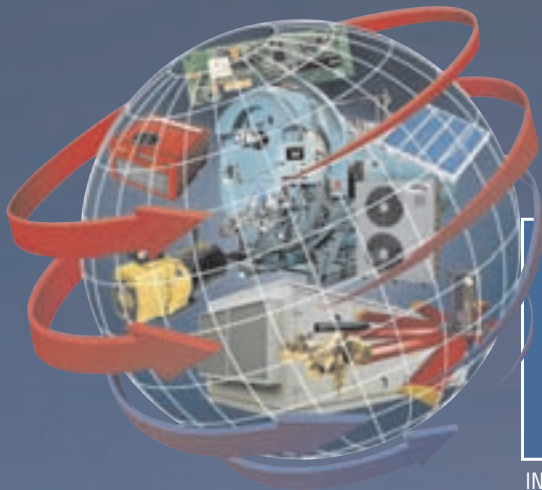
May 4-6, 2006
Connections Conference and Exhibition
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 Clearwater Beach, Fla.
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 Contact: 888/881-1001 or email textilecon@aol.com.

May 13-18, 2006
AIHce 2006
 McCormick Place.
 Chicago.
 Sponsored by the American Industrial Hygiene Association.
 Contact: Claire Davis at cdavis@aiha.org or call 703/846-0753.

May 15-20, 2006
Affordable Comfort Conference 2006
 Austin, Texas.
 Sponsored by Affordable Comfort Inc.
 Contact: Affordable Comfort at 724/627-5200 or visit www.affordablecomfort.org.

June 25-28, 2006
NEHA Annual Conference
 Hyatt Regency San Antonio and St. Anthony Wyndam.
 San Antonio, Texas.
 Sponsored by the National Environmental Health Association.
 Contact: Toni Roland at 303/756-9090 or troland@neha.org. 

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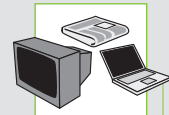
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Ain't It A Crime

Mold and Crime Connected in the News

Mold and moisture issues have sparked high emotions in lawsuits across the country and debates spanning industries ... but these crimes show some more unusual ways mold may enter the courtroom. A round-up on the most interesting articles from the media follows:

Dropping the Bar on Mold Case

A Manhattan lawyer who refused to tell hundreds of clients suing over mold in their homes how much money he'd won for them was disbarred in April, according to an article in *The New York Post*.

Steven F. Goldman turned in his resignation due to an investigation into charges against him of professional misconduct. The alleged misconduct occurred when Goldman represented 480 residents of a Kips Bay, N.Y., housing project who claimed they were being made ill by mold in their homes. Goldman refused to tell his clients the size of the settlement or his fees. The disciplinary committee said it was also looking at charges that Goldman had used some of his clients' cash for himself, according to the article.

A *Post* investigation found that the case had been settled for \$1.17 million, \$628,000 of which went to Goldman's fees and expenses.



Waiting for Flood of Water Damaged Cars

For anyone who thinks they weren't directly impacted by Hurricane Katrina in August, an article in the *Times Leader* warns of another Katrina-related danger to look out for down the Gulf Coast: cars damaged by the flooding being turned loose on the market.

According to the article, insurance companies generally buy these cars and then resell them to be used for parts—but some dealers take advantage of scrap prices and fix up the water damaged vehicles to put them back on the market. Even if they look good, water damage will likely have wreaked havoc on electronics and safety systems, not to mention the potential for all that hidden mold growth in the upholstery, carpet or trunk.

The article recommends that prospective buyers research a used car's history to make sure a flood-damaged title hasn't been issued for it. A mechanic also should inspect the vehicle.



A Near-Mold Scare

According to an August article in the *Wyoming Tribune-Eagle*, two trash bags labeled "toxic waste" and left outside the Cheyenne, Wyo., offices of the *Tribune-Eagle* and the city-county health department were found to contain only moldy drywall. The bags were tested for anthrax, plague and ricin, but results for those substances were negative. Cheyenne police said charges may be considered against the person who left the bags. 





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Career development for IAQ professionals

The Indoor Air Quality Association has consolidated its membership with those of the American Indoor Air Quality Council (AmIAQ) and Indoor Environmental Standards Organization (IESO). Combined, the total membership of IAQA effective January 1, 2006 is more than 5,500.

The AmIAQ Chapter program is moving over to IAQA. Our 5,500 members will have access to a growing network of more than 30 chapters world-wide. Chapters offer local workshops and activities up to four times per year. Chapter membership is included when you join the Indoor Air Quality Association.

For a schedule of Chapter Workshops, visit www.iaqa.org after January 1, 2006, or www.amiaq.org in the meantime. For information about how to join IAQA and become a part of your local chapter – or to help start a chapter in your area – visit www.iaqa.org or call (301) 231-8388.



Indoor Air Quality Association

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