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& MOISTURE MANAGEMENT MAGAZINE
The Magazine for Moisture Prevention and Remediation
July-September 2005
Volume 2 | Issue 3

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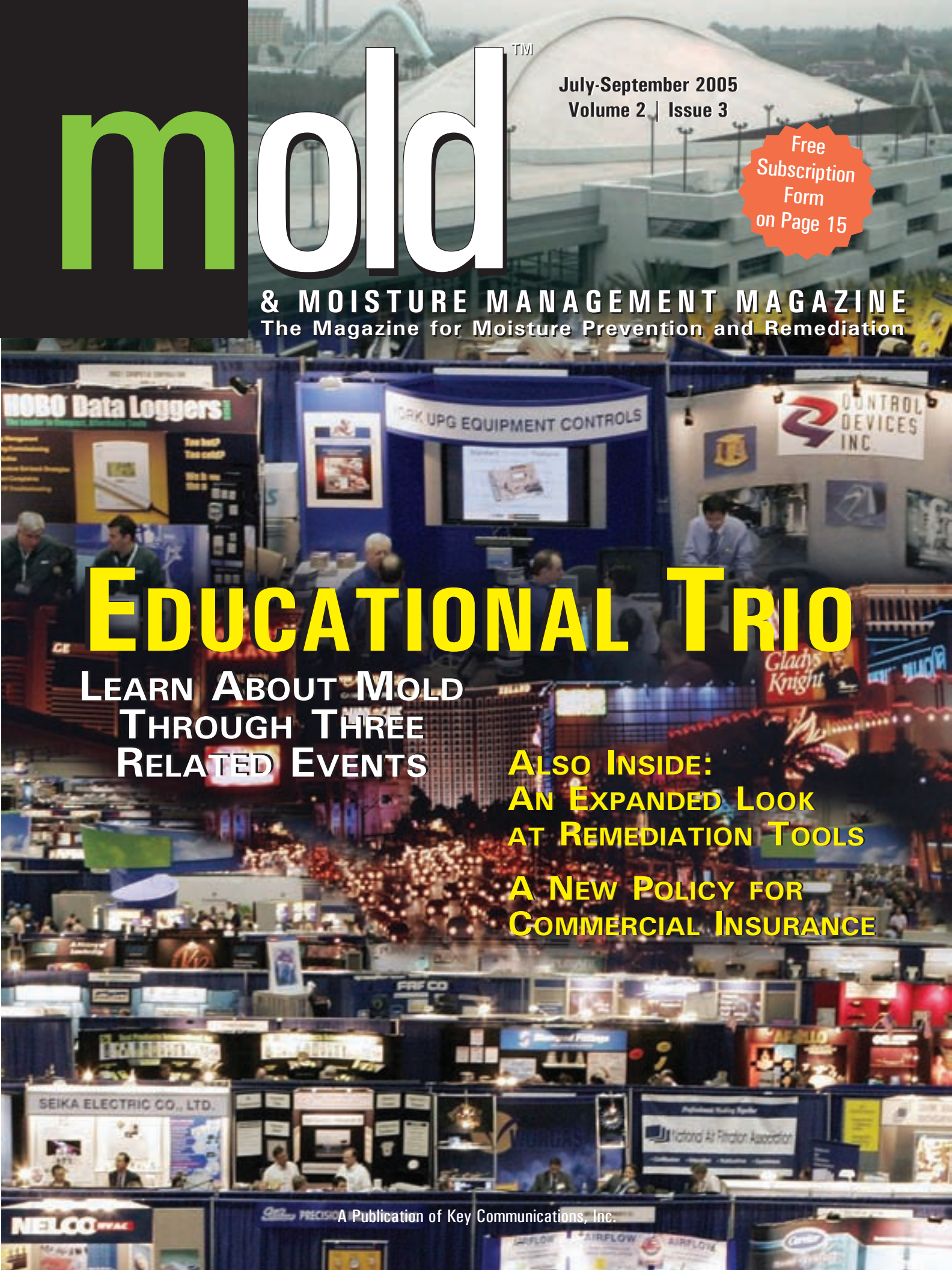

Educational Trio

Learn About Mold Through Three Related Events

Also Inside: An Expanded Look at Remediation Tools

A New Policy for Commercial Insurance

A Publication of Key Communications, Inc.

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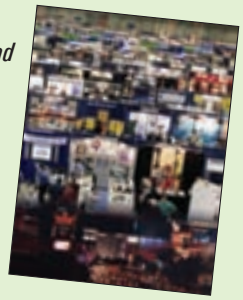
On the cover

Turn to page 30 to read about what three very different events–the AHR Expo, AIA Convention and AIHce–have in common.



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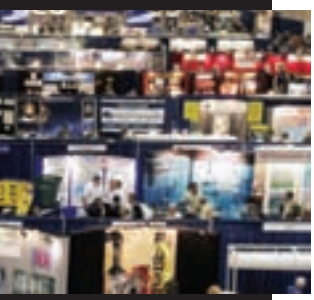

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remediation

An in-depth section just for remediators, featured in every issue.

Always On My Mind

If your calls or e-mails to **Moldmag** went unanswered during the last week of June, I have an excuse. After months of traveling to shows, I finally took a trip that I thought would take me far away from the concerns of mold prevention and remediation: a vacation in Paris, France.

Yes, I sipped red wine on the Champs Elysee, took a boat ride along the Seine and explored some of the most striking cathedrals in Europe. Yet—as I'm sure some of you out there can appreciate—work was never all that far from my mind.

For instance, I spent one day exploring the Louvre, the enormous palace that houses approximately 40,000 of the most famous works of art in the world. My mother—my traveling companion—and I walked through the rooms in awe. At one point, as I examined a small medieval painting, I called to Mom to hurry over.

"Look!" I said, pointing excitedly to the glass case and waiting for her to see what had caught my eye.

She examined the ornate frame, the bright colors and the places where paint had been worn away by time.

"No, look," I said again. This time I tapped the edge of the glass. "See, they're measuring the relative humidity in the case. Can you imagine the work involved in keeping the moisture levels steady in this old, drafty castle? Can you see how devastating a mold problem could be in a place like this?"

Then later it happened again, when we were descending the stairs of the crypt in l'Eglise de Dome where Napoleon is entombed. Mom shivered in the marble stairwell, reaching for the handrail then pulling her hand quickly away when she realized the metal was wet. The moisture levels could only be controlled so much with tourists constantly pushing through the swinging doors above, bringing the steamy June air inside to condense and form mold upon the air conditioned walls.

Well, maybe Mom was more impressed by the art of life in Paris than my dedication to work, but it was she who made the last comment on the subject. Looking out the window of the airplane at the clouds below, my mother sighed wistfully at the end of a wonderful vacation.

"You know," she said, "I heard on the news that a lot of the pyramids in Egypt suffer from terrible mold problems. Do you think maybe next year …?"

For now, that trip to Egypt is still far off in the future, but with travel still on my mind, I recommend reading about a few recent trips where mold was in fact the subject du jour, in the show review on page 30. And while it may not seem as exotic as remediation in an Egyptian king's tomb, our Remediation section, starting on page 16, offers news about the companies whose work is utterly invaluable in the eyes of the home and building owners who request their services.

Please read on, and keep me posted about your future "adventures" with mold.

Megan Headley, editor
Moldmag

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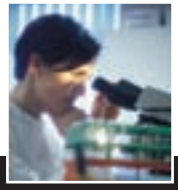

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The Wet Season for Gypsum

Existing Codes and Standards Should Keep Gypsum Mold-Free

by Colin Murphy and Lonnie Haughton

Colin Murphy is a founder and managing partner of Exterior Research & Design LLC, a building envelope forensics, testing and design consulting firm based in Seattle. **Lonnie Haughton** is a senior project manager with Posard Broek + Associates in San Anselmo, Calif.

Due to their low costs and excellent fire-resistive performance, gypsum board products for roof and wall assemblies are widely used in the North American construction marketplace. In 2004, U.S. manufacturers shipped a record 34.24 billion square feet of gypsum wallboard and Canadian manufacturers shipped an additional record 3.55 billion square feet (source: Gypsum Association).

The vast majority of gypsum board products (both interior wallboard and exterior sheathing) are manufactured with a paper facer on each side of the gypsum core. It is becoming increasingly well understood by designers and contractors (and attorneys) that these paper facers can provide an ideal substrate for mold proliferation if they are allowed to become wet. It is for this reason that Georgia-Pacific has ceased production of paper-faced gypsum sheathing for exterior use:

- "... Traditional paper-faced gypsum sheathing ... has significant limitation, including a lack of resistance to moisture ... If paper-faced exterior sheathing becomes wet and the project is 'closed in' without adequate drying, the paper on the face and back of the panel can provide an excellent environment for mold growth" (G-P news release dated April 2004).

The simplest method for preventing mold growth on paper-faced gypsum is to just keep the boards dry during and after construction; however, the prudent architect or specifier may wish to substitute the more expensive sheathing boards that do not have paper facers. More and more, support for this position is found in leading industry publications, as evidenced by the alarmingly titled article, "Avoiding the Perils of Paper-Faced Exterior Gypsum Sheathing," published by Eric K. Olson, PE in the February 2005 issue of *The Construction Specifier* magazine:

> "Practically speaking, specifiers rarely have control over the ultimate quality of workmanship or any of the factors coming into play after construction. As such, the proper selection of mold-resistant materials to provide some 'forgiveness' due to construction errors or delays is of utmost importance."

"Despite these requirements, we continue to witness construction during the wet seasons where a contractor simply covers damp gypsum and wood products and hopes for the best."

In other words, the construction specifier or architect can lessen his/her potential exposure to future mold litigation and better protect the building's future occupants by specifying exterior gypsum board products that are manufactured to provide improved resistance to moisture infiltration and mold infestation. Considering the enormity of some recent mold litigation awards, it is clear that the increased costs for these mold-resistant materials are as economically (and socially) justifiable as the increasing levels of seismic detailing required for new structures, even when located in zones of low seismic risk.

However, if paper-faced gypsum board is specified at a project, the contractor must be aware of current industry standards for moisture protection and mold prevention:

- GA-283-03 (*Guidelines for Prevention of Mold Growth on Gypsum Board*), issued by the Gypsum Association, provides basic standards for transportation, receiving, storage, handling and application of gypsum board products and emphasizes that "gypsum board *must be kept dry* to prevent the growth of mold."
- ASTM C 1280-04 (*Standard Specification for Application of Gypsum Sheathing*) states that gypsum sheathing "shall not be exposed to the elements for more than 30

days after it has been installed" and also requires that "the exterior face paper of the sheathing shall be dry prior to application of the ... weather-resistive barrier."

Compliance with ASTM C 1280 is prescribed within Chapter 25 of the International Building Code (IBC). The companion *Commentary* volumes of the IBC confirm, "With regard to weather protection, all gypsum products must be kept dry because of the deleterious effect of moisture."

Similarly, Section R701.2 of the International Residential Code states, "Products sensitive to adverse weather shall not be installed until adequate weather protection for the installation is provided. Exterior sheathing shall be dry before applying exterior cover."

In summary, building codes and industry standards require 100-percent weather protection of interior gypsum wallboard products and forbid the contractor from closing in paper-faced gypsum sheathing products that have become wet. Despite these requirements, we continue to witness construction during the wet seasons where a contractor (who may be facing stiff financial penalties if the project is delayed) simply covers damp gypsum and wood products and hopes for the best. For some of these projects, a few simple photographs of these actions likely will prove to be invaluable weapons for the plaintiffs (and some codefendants) when mold/decay litigation later is initiated against the contractors.

This issue has been particularly problematic for contractors in jurisdictions regulated by the Uniform Building Code, which, in general terms, has calculated an exterior wall's fire rating from both the interior and exterior sides—thus requiring the use of gypsum board products at both sides of the wall. In contrast, the IBC follows the lead of the "legacy" BOCA National Building Code by requiring, "The fire resistance rating of exterior walls ... shall be rated for exposure to fire from the inside," except for buildings located within five feet of property lines or other structures.

In other words, for a significant portion of the construction controlled by the IBC there is no fundamental design requirement for the use of gypsum sheathing at the outer face of exterior walls. (Note that this apparent reduction in fire-resistive performance is offset by increased requirements for sprinkler installation and performance at the building interiors.) Clearly, it is reasonable to expect that any design revisions and/or new product specifications that reduce the use of paper-faced gypsum sheathing at exterior walls will result in fewer mold claims.

The Three Tiers

Water Management Runs From Manufacturer to Homeowner

by Larry Livermore

Larry Livermore is the technical standards manager for the American Architectural Manufacturers Association (AAMA).

Effective water management is a three-tiered effort, involving the manufacturer, the installer and the homeowner. From our industry's perspective, it begins with the design and fabrication of certified fenestration products whose performance is verified by independent accredited laboratory testing of product samples based upon proven window and door performance standards: ANSI/AAMA 101/I.S. 2-97, AAMA/NWWDA 101/I.S. 2/NAFS-02 or AAMA/WDMA/CSA 101/I.S. 2/A440-05. That is tier one.

As I've previously noted in this column, the second tier is installation—a determining factor of whether or not the leakage resistance designed into the product has the potential for being realized in the field. There are a variety of ways to address this—one being the InstallationMasters ™ program based on the ASTM E 2112 standard for proper installation. However, the fenestration industry is not resting on these documents as all encompassing.

New Standards Address Proper Installation

To aid the effectiveness of manufacturer-recommended installation methods and materials, a new test method can help verify the installation method before the product ever reaches the field. It is described in AAMA 504, *Voluntary Laboratory Test Method to Qualify Fenestration Installation Procedures*, scheduled to be released this year. It is intended for use in qualifying manufacturer-prescribed installation methods for windows, sliding patio doors and swinging doors used in residential or light commercial new wood-frame construction. In practice, the manufacturer submits the product premounted in a wall section per the installation instructions like those normally provided to contractors. The product is then tested as mounted. Verifying installation methods in this way, earlier in the product development pipeline, can help forestall on-site leakage problems.

The industry is also recognizing that in a wall assembly, the flashing needs to be properly integrated with the weather-resistant barrier (WRB). Together with the facing material, the integrated flashing and WRB must form an integrated and effective weather-resistive system. Windows and doors flashed correctly integrate flashing materials with the drainage plane to provide more complete protection.

> "Verifying installation methods ... earlier in the product development pipeline can help forestall on-site leakage problems."

As a first step in addressing this fact, AAMA 504 recognizes that the performance of self-adhering flashing surrounding fenestration products mounted in exterior walls depends on adequate adhesion between the flashing adhesive and the substrate (e.g., wall sheathing), such that the flashing remains attached to the substrate and maintains a moisture seal. The standard will establish minimum performance requirements for self adhering flashing and set forth values enabling the specifier to evaluate self adhering flashing products.

Among the recommended performance tests, the standard will spell out methods for testing water penetration resistance around nails and evaluate how well a self-adhering flashing tape remains bonded to the substrate under conditions of constant stress after thermal cycling and water immersion. If documented and tested installation methods and materials aren't sufficient, performance after installation can be checked according to the methods of test protocols, such as those set forth in AAMA 502-02, *Voluntary Specification for Field Testing of Windows and Sliding Glass Doors.* While useful for verifying air infiltration and water penetration resistance of newly installed products, it is of maximum benefit when performed as soon as practical on the jobsite so that any manufacturing, installation and/or perimeter sealing problems can be detected and corrected before a substantial portion of the project is completed.

Homeowners Must Do Their Part

As the important third tier of the moisture management system, homeowners must join the water management team by maintaining their windows and ensuring that indoor moisture is controlled so that any water that does get through dries rather than accumulates. This includes controlling a potentially major source of interior moisture: condensation.

To help educate homeowners in their role, AAMA has recently published a consumer brochure entitled *Caring for Your Windows.* It recommends several steps to minimize condensation and reduce interior moisture build-up.

When everyone works together, approaching the wall and its fenestration components as a total system and maintaining on-going control of moisture accumulation, the task of preventing moisture-induced damage becomes much easier. m

Flash it Right the First Time

Because You're Not in the Callback Business

In a Williams Building Diagnostics investigation of 100 North Carolina single family homes, it was discovered that approximately 50% of all moisture damage incidents were traced to areas below the windows.

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Disease of the Mold Experts

How Some Experts Fuel the Mold Frenzy

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.

All mold cases involve mold "experts" who apparently are able to find "toxic" mold wherever they are paid to look. Mold cases that involve claims for personal injury revolve around questionable medical conditions. Indeed, an entire industry of mold "experts" has sprung up, an industry which includes doctors who do not treat patients, but see them solely for litigation purposes, and air quality specialists who guarantee mold is not only present but is toxic. These mold "experts" fuel mold litigation.

Plaintiffs in mold personal injury lawsuits claim that a wide variety of diseases are caused by exposure to mold ranging from the relatively mild exacerbation of allergies to the more severe and attention-grabbing cognitive impairment. In the middle of the spectrum are soft-disease diagnoses, such as chronic fatigue syndrome, fibromyalgia and multiple chemical sensitivity syndrome. These soft diseases share nebulous criteria and unknown causes. Chronic fatigue syndrome (CFS) is defined as a non-specific fatigue that lasts more than six months. Fibromyalgia is a diffuse pain of the muscles or tendons. Multiple chemical sensitivity syndrome (MCS) is characterized by unusual reactions to common chemicals such as bleach, gasoline or perfumes.

Unlike CFS and fibromyalgia, MCS is not generally accepted by the medical community as even constituting an actual disease. Persons allegedly suffering from MCS claim rashes, breathing problems, tremors, fainting and more. Since reputable doctors do not accept MCS as a disease, there is little scientific evidence proving that mold causes this syndrome. In response, plaintiffs (and their experts) maintain the condition is just new and not well-understood.

Expertise in Court

An equally important problem with many of these claimed medical conditions is that exposure to mold is not generally accepted as a cause of the diseases. It is clear that exposure to mold can worsen asthma and allergies. The belief that mold exposure causes CFS or fibromyalgia or cognitive impairment is not accepted in the medical community. Plaintiffs often use medical "experts" on the fringes of their community to testify that mold is a likely cause of CFS or fibromyalgia, because neither condition is well understood at this time. These fringe doctors cast their opinions in the guise of newly-discovered theories. Depending on the jurisdiction, some courts will permit this testimony as evidence tending to prove plaintiffs' claims, which then forces the decision on jurors as to what caused the condition. Right or wrong, jurors sometimes make decisions based on whether they like or sympathize with plaintiffs rather than on sound science.

> "Plaintiffs often use medical 'experts' on the fringes of their community to testify that mold is a likely cause of CFS or fibromyalgia, because neither condition is well understood at this time."

In addition to fringe medical expert testimony, plaintiffs use indoor air quality "experts" to show they were exposed to "toxic" mold. The "experts" range in experience from weekend-certified experts to certified industrial hygienists. With any kind of mold "expert," the test results normally identify molds with frightening names like Stachybotrys chartarum and Aspergillus niger. Pounding on walls, jumping on furniture to raise the level of dust/molds in the air is not beyond the limits of what some mold "experts" do. These so-called mold "experts" will also go to great lengths to test air trapped between drywall and the frame of a home to obtain higher mold counts. These mold "experts" justify this examination by claiming air moves freely between that cavity and the indoor environment, a theory not proven by evidence—or logic.

Critical information is often missing from the reports supplied by these mold "experts." For example, they cannot provide a normal range for indoor molds, nor identify the amount of a specific mold which is toxic. The answers are simple: there is no general range for toxicity nor is there a normal range of exposure. Qualified toxicologists will often say that "the dose makes the poison." Even water can be toxic if the dosage is high enough. The dose at which a mold may be toxic to a particular individual has not been answered. Likewise there is no evidence as to what constitutes a normal range of mold. Until such evidence is developed, the mold "experts" will continue to exploit the absence of defined criteria.

Mold "experts" fuel mold litigation by presenting theories they claim are on the cutting edge. In fact, they are not supported by sound science.

Preventing Water Penetration

Maximizing Your Sill Pan Flashing

by Jeff Martin

Jeff Martin is vice president of Jamsill Inc.

There are many givens in building: builders build, homeowners change their minds and window and door openings inevitably leak. Leaks can lead to mold, rot and buckling floors … unless the doors and windows are protected—a sill pan flashing (SPF) system is one such form of protection.

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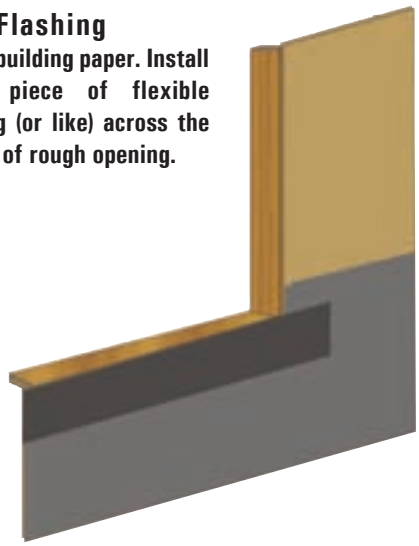
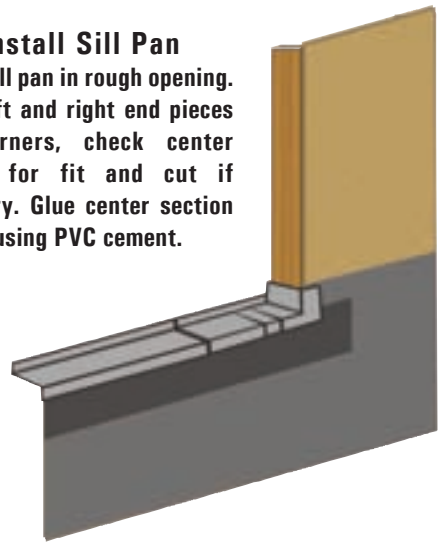
1. Flashing

Install building paper. Install lower piece of flexible flashing (or like) across the bottom of rough opening.



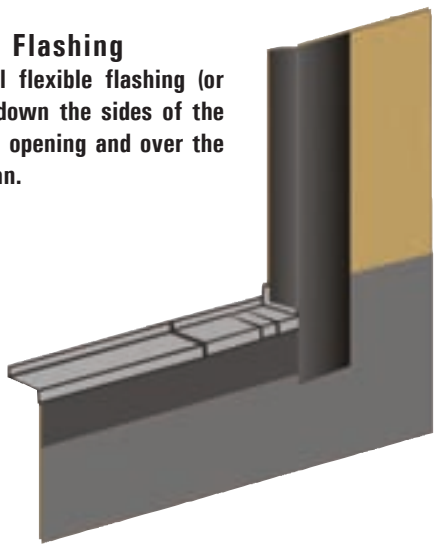
2. Install Sill Pan

Install sill pan in rough opening. Place left and right end pieces into corners, check center section for fit and cut if necessary. Glue center section to ends using PVC cement.



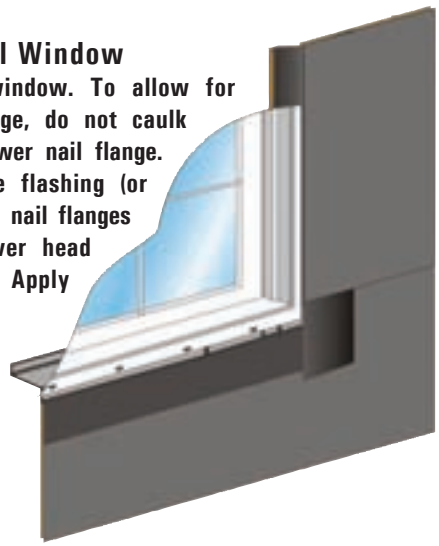
3. Flashing

Install flexible flashing (or like) down the sides of the rough opening and over the sill pan.



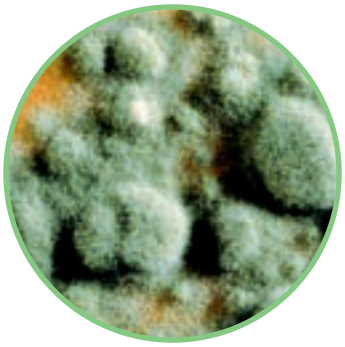
4. Install Window

Install the window. To allow for proper drainage, do not caulk behind the lower nail flange. Apply flexible flashing (or like) over side nail flanges first, then over head nail flange. Apply building paper.



A Growing Concern:

Condensation can lead to more than bacteria and molds. It can increase the likelihood of fungi, viruses, and mites that cause respiratory infections, allergies and asthma.



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INDUSTRY NEWS

Moldicide Spill Causes Highway Havoc

An accident caused when a tractor-trailer carrying a moldicide plowed into another truck on Interstate 95 closed a 9-mile section of the major highway between Richmond, Va., and Washington, D.C., leading to traffic nightmares for an area already known for its gridlock. The day's delays were largely due to the need to repave the road in areas where the chemical was leaked.

The tractor-trailer, driven by Neil C. Irelan—the one fatality of the accident—was carrying Arch Moldicide WE manufactured by Arch Chemicals Inc. of Norwalk, Conn. The product is used to prevent mold on paint, wood and paper, and its active ingredient is methylisothiazolinone.

The July 9 *Free Lance-Star* reported Fredericksburg, Va., Fire Lt. Dave Morris' statement that if the substance is touched, it can be absorbed by the body or can create respiratory problems if inhaled. Although it is an EPA-approved product, it was spilled in its concentrated form.

The moldicide leaked from seven containers, each of which held 275 gallons of the substance. The area was secured by the Fredericksburg hazardous-materials team before workers absorbed the more than 1,000 gallons of the chemical from the road and pumped it into tanks. A private contractor then sprayed the road with chemicals to neutralize the spill before the pavement was milled and replaced.

Measuring Effective Tools of the Trade

At the AIHA convention and expo in May, John Martyny of the National Jewish Medical and Research Center (NJMRC) in Denver presented a study that showed that chlorine bleach is an effective tool for cleaning mold on contaminated building materials. The study, *Efficacy of Chlorine Bleach in Killing and Blocking Allergic Reactions to Mold on Contaminated Building Materials*, was funded by Clorox.

Commercial chlorine bleach, a Tilex® solution and distilled water controls were applied on building materials covered with Aspergillus fumigatus and then observed over time by the research team. The results of the study showed that the application of either chlorine bleach or Tilex appeared effective in killing Aspergillus. In addition, the antigenicity of the fungi recovered from treated boards, as measured by ELISA (Enzyme Linked ImmunoSorbent Assay used for detecting the presence of antigen), was substantially reduced compared to the controls. Skin prick testing demonstrated loss of skin test reactivity to mold in 5 of the 6 individuals tested with bleach-treated fungal extracts. The study concluded that the spray application of bleach onto mold-contaminated building materials can kill mold and reduce its allergic properties, although its effectiveness was not compared to other available methods or cleaners.

www.aiha.org/aihce05/handouts.htm or call the NJMRC at 303/388-4461.

ASSOCIATIONS

AmIAQ to Join IAQA and IESO at Annual Convention

The Indoor Air Quality Association (IAQA) of Rockville, Md., has announced that the American Indoor Air Quality Council (AmIAQ) of Phoenix, Ariz., will be a convention partner at the IAQA 2005 Annual Meeting and Expo, October 6-9 at the Hilton Resort at Walt Disney World in Orlando, Fla. The Indoor Environmental Standards Organization (IESO) is also a confirmed convention partner. According to an IAQA news release, the convention will be known as the 2005 IAQA-IESO-AmIAQ Annual Meeting and Exposition.

"We are ecstatic that AmIAQ has accepted our offer to be a convention partner. By inviting our 2,400 members and AmIAQ's 2,700 members to gather at one meeting, we are destined to produce the largest IAQ conference and exposition ever held," said Robert Baker, IAQA president.

As a convention partner, AmIAQ will be involved in setting the technical program for the convention.

"The council had been contemplating producing its own convention," said Charlie Wiles, AmIAQ executive director. "When we considered the invitation from IAQA, it made sense in that it allows AmIAQ to become involved in a convention that has already gained a reputation for quality education and exhibits. The idea of partnering on the convention was also appealing since instead of AmIAQ creating yet another industry event, the council can instead help to foster greater unity among IAQ professionals by convening with colleagues from IAQA and IESO."

Last year's convention attracted more than 900 attendees and 80 exhibitors. This year, convention organizers are anticipating twice that number.

MERGERS AND ACQUISITIONS

Texas Association for IAQ Announces Merger with EEF

The Texas Association for Indoor Air Quality (TAIAQ), a nonprofit, multi-disciplined organization dedicated to promoting the exchange of indoor environmental information through education and research, has announced the merger of its membership into the Environmental Education Foundation (EEF). EEF is a Gilbert, Ariz.-based non-profit organization that focuses on environmental, health and safety issues. This merger is expected to pave the way for the hundreds of professional members of TAIAQ to provide a new depth and breadth to EEF's existing membership base of over 5,500.

Past TAIAQ president and existing EEF member, Greg Becker, the IAQ manager of Becker Engineering, called TAIAQ's decision to merge with EEF "a major step forward in the servicing and recognition for our members." He continued, "This merger was a natural fit for both groups; it will benefit existing TAIAQ members and EEF members alike."

The TAIAQ board of directors will be taking key strategic roles in EEF, including committee chair positions and selected appointments to various federal and state agency committees with which EEF is affiliated.

In addition, two other associations have joined the IAQ advisory group convened by EEF: the National Air Duct Cleaners Association (NADCA), the HVAC system cleaning industry's largest trade association, and the Air and Waste Management Association (A&WMA).

www.enviro-ed.org
or call 480/659-9356.

COMPANY NEWS

ASU Faculty Conducts Research for Global Prevention Services

Global Prevention Services (GPS), headquartered in Scottsdale, Ariz., has announced that research on its

continued on page 14

continued

mold prevention and remediation system has been completed. The research was done by Arizona State University faculty research associate Dr. Absar Alum through the school's IRA A. Fulton School of Engineering, Department of Civil and Environmental Engineering. His ongoing research for GPS has focused on various mold spore samples. According to information provided by GPS, these findings from Dr. Alum have helped the company to establish creditability in how various mold grows and has assisted GPS in targeting various mold spores for treatment.

In the study, drywall and pinewood were treated with GPS's Microbial Shield mold prevention system before being inoculated with Penicillium and Stachybotrys. For the mold challenge study, separate sets of experiments were performed to test the Microbial Shield agent against fungal mycelium and fungal spores. The study's results showed that drywall treated with GPS's system showed less than 0.1 percent growth of mold, while pinewood treated with the system did not show any visible growth of either of the two mold species.

Dr. Alum also made several observations about mold and humidity in a controlled environment.

"The amplification of mold can be arranged along a scale of humidity requirements ranging from 0 to 100 percent," stated Dr. Alum. "At one end of the scale we find powdery mildew fungi, some of which produce spores able to germinate at 0 percent relative humidity (RH). At the other extreme, a number of fungi appear to require liquid water for germination.

"The temperature and humidity requirements of fungal growth are so interrelated that it is somewhat artificial to speak of an optimum for either without specifying the other. In general, as the temperature is raised the requirement for water becomes more stringent, the relative humidity (RH) requirement for

CertainTeed Survey Says Mold Concerns Still Growing

In a national survey released by CertainTeed Corp. of Valley Forge, Pa., and conducted for them by Opinion Research Corp., 55 percent of 1,040 respondents expressed concerned about mold in the home. The nationwide survey looked at what homeowners thought caused mold and what actions they would take if a mold problem was found.

According to a news release from CertainTeed, one in four adults surveyed said they have experienced a problem with mold in their homes or know someone who has.

"Mold has been around forever, but in the past few years it has emerged as a financial and health problem for homeowners because increased numbers of people are getting sick from nosebleeds to seizures to respiratory ailments to memory loss," said Glenn Singer, manager of building science for CertainTeed's insulation group.

Mold Survey Tabulations

Have you or someone you know experienced a problem with mold in the home?

Yes	25%
No	75%
Don't know	1%

Would you be likely to buy an existing home if it had a mold problem, or a new home from a builder who had a mold problem in the past?

No	84%
Yes	11%
Don't know/none of these	4%

How concerned are you about the stories you've read or heard about mold growth in homes?

Somewhat concerned	31%
Very concerned	24%
Not very concerned	24%
Not at all concerned	20%
Don't know	1%

Which of the following do you think is the most common cause of mold?

Excess moisture	45%
Living in a humid climate	15%
Poor construction	13%
A leaky roof	11%
A leaky or burst pipe	11%
Water spills	3%
Don't know/none of these	3%

If you found mold in your home, which one of the following would you be most likely to do?

Call a mold remediation expert	56%
Try to clean it up yourself	34%
Move to a new home	5%
Tear your home down and rebuild	2%
Don't know/none of these	2%

Would you be likely to sue a builder, previous owner, or landlord if mold was found in the walls of your home?

Yes	48%
No	46%
Don't know/none of these	8%

Which of the following would be your biggest concern if you discovered you had a mold problem in your home?

Your health and the health of your family	65%
The expense of repairing it	11%
The sheer aggravation	10%
Not knowing where or who to go to for repairs	7%
The damage to your home's value	4%
Don't know/none of these	3%

www.certainteed.com or call 800/233-8990.

best germination rises," he continued.

According to Dr. Alum's findings, several fungi, including species of Aspergillus and Penicillium, form spores which germinate at an average RH of 75 to 80 percent.

"This value seems to be the practical low limit for fungi apart from the powdery mildew fungi. At the top of the scale there are the fungi that require liquid water for substantial spore germination, e.g., Endoconidiophorea fogacearum, Sclerotinia spp and asexual spores of Peronosporales," said Alum.

These species, however, are well outside the norm. Before germination is possible, fungal spores of the usual type (those with low water contents in hygroscopic equilibrium with the environment) must absorb water to reach the level of that in powdery mildew—70 percent before germination is possible.

According to GPS, studies from ASU will continue.

www.nomold.com or call 877/NoMold5 (666-6535).

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All questions must be answered to qualify!

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) _____

3. Principle Business Activity at this location

❑ **1100** Building
❑ **1200** General Contracting
❑ **1300** Remodeling
❑ **1400** Architect/Specifying/ Engineering
❑ **1500** Specialty Contracting (HVAC)
❑ **1600** Building Owner or Manager
❑ **2100** Mold Remediation Specialist
❑ **2200** Air Quality Specialist/ Industrial Hygenist
❑ **2300** Waterproofing
❑ **2400** Home Inspecting
❑ **2500** Water Damage Repairing
❑ **4000** Others allied to the field, (please specify) _____
❑ **4100** Homeowner/Consumer*
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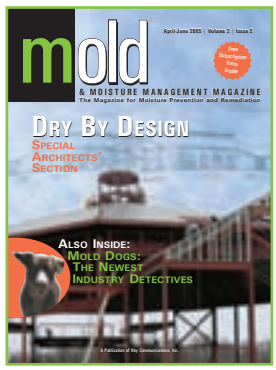

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Trouble in Paradise

When Water Damage Creeps into Unoccupied Timeshares

by Peter Sierck

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. Peter can be reached by e-mail at PSierck@IAQsurveys.com.

Managing a timeshare building provides a great opportunity to live in places where others spend their vacations. To live on the bluff of the Southern California coast, in an area that is unaffordable for most people, is a delight in itself, but to be paid to live there is paradise.

A couple in charge of the janitorial and management service of a two-story, eight-unit timeshare complex had lived at the Southern California timeshare for three months and still found themselves astonished by the beauty of their surroundings. Their office window offered a view of the ocean.

"They were astonished that such a minimal moisture/mold problem could create such a strong odor."

Work at the timeshare left both husband and wife exhausted at the end of the day, although it did not appear to be that much work. They felt that they had worked much harder at their former home in the Midwest. They blamed the climate change for their exhaustion.

One morning in the shower the wife discovered a red itchy rash on her leg and scheduled an appointment with a dermatologist. The dermatologist asked her a lot of questions and concluded that the rash might be the result of exposure to an irritant. She recalled that the day before she had thoroughly cleaned two units and other common areas within the complex. The dermatologist concluded that it was possible that she had suffered from an allergic reaction to something in the building in which she lived and worked.

The yellow pages guided the woman to an industrial hygiene company. She scheduled an inspection for two days later, although her husband maintained that she was overreacting, as it was just a rash that could be cured with an ointment.

From Such a Small Problem

The next morning, the couple went to work at a unit that had been unoccupied for a week and needed to be prepared for the new guests. Cancellations rarely occurred as timeshares are usually continuously occupied. The couple opened the door and was hit by a strong musty and chemical odor. They continued inside, opening the doors and windows, and started to search for the source of the odor.

The husband found a small leak under the sink and a little mold growth on the cabinetry. They were aston-

ished that such a minimal moisture/mold problem could create such a strong odor. He fixed the small leak and wiped the minimal mold growth off the bottom surface of the cabinet before repainting it. She started to clean the unit, but was unable to continue as she felt progressively worse. She decided to continue cleaning the next day. However, her rash continued to get much worse during the night.

The next day the industrial hygienist entered the same unit. The odor was still very strong, and now mixed with a slight paint odor. Moisture measurements showed that the building materials tested dry except for slightly elevated levels in all of the bottom shelves of the kitchen cabinetry. No visible mold growth was detected in the unit. Spore trap air samples were collected. The inspection of the adjacent areas in the complex revealed no signs of moisture intrusions. Out of the crawl space vents came the same strong odor.

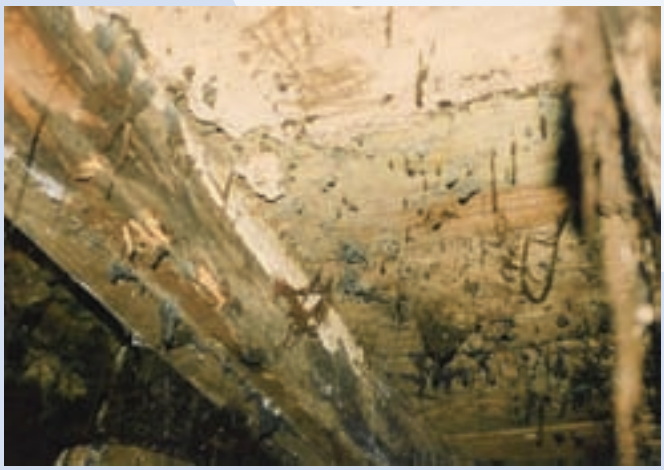
Protected by a full face respirator and coveralls, with hood and booties, the industrial hygienist went into the crawl space. The inspection revealed abundant visible mold growth on the building paper and on all the subfloor materials of the complex. The water source appeared to be a hot water pipe emitting a constant fine mist in several areas.

Inspection Findings

The spore trap air sampling results showed the presence of Stachybotrys spores and elevated Penicillium/Aspergillus spore levels in all the indoor locations sampled. The surface samples collected in the crawl space indicated active fungal growth of Stachybotrys, Penicillium and Aspergillus. The report concluded that remediation should be conducted to include removal and replacement of all subfloor materials, as well as all affected materials in the kitchen cabinetry of all ground level units.

A claim was filed and the report was forwarded to the insurance adjuster. The adjuster did not believe that such an extensive remediation was necessary. He requested a site meeting with all parties involved. The meeting was conducted at the poolside, where the industrial hygienist explained the possible health effects of the molds detected in the air and surface samples.

At that very moment, a rat made its way out of the crawl space, bleeding from its mouth, and died right in front of the group. The building manager stated that rat poison had not been applied on the property for several months. The adjuster immediately approved all costs involved in the remediation effort.



A small amount of mold visible to building occupants can very likely be the sign of bigger problems.

Buildings that aren't occupied regularly may have small problems such as slowly leaking pipes that go undetected for years.

How could such a moisture problem stay undetected for an extended period of time creating such extensive damage? Due to frequent changes in occupancy, odors and other damage may go undetected. So what can a building owner or manager do to prevent this dilemma? The implementation of regular crawl space inspections is not the answer. A better solution is to be aware that all buildings that are not occupied continuously are especially vulnerable to slowly progressing problems that will create great damage in the long run. A higher level of maintenance with regular inspections of all areas in the building, and the immediate response to suspected problems could prevent a big headache in paradise. m

COMPANY NEWS

Heat Process for Treating Mold Boosts Two Remediation Businesses

SFCS Environmental Inc., an Oakland Park, Fla.-based mold remediation contractor, has been using a new process that kills mold, bacteria and viruses in homes without chemicals to disinfect hurricane-damaged homes in North Captiva Island, Fla. The process, ThermaPureHeat™, utilizes clean, dry, odorless heat to disinfect buildings in much the same way heat is used to pasteurize milk and to kill bacteria in wine.

"The ThermaPureHeat process has been effectively used in California with great success, however the process is relatively unknown in Florida," said Jerry Gillman, president of SFCS Environmental. "Florida, with its high humidity levels, is the ideal environment for mold related issues. With traditional mold remediation methods, the cost for remediation of a 2,000-square-foot structure averages over $40,000. If that isn't bad enough, occupants can be displaced for weeks or even months while traditional methods are completed. Our process can be completed in a day for a fraction of the cost for most structures."

SFCS uses tarps to cover luxury beach homes for mold treatment.

The company hopes to interest Florida public school boards in the technology.

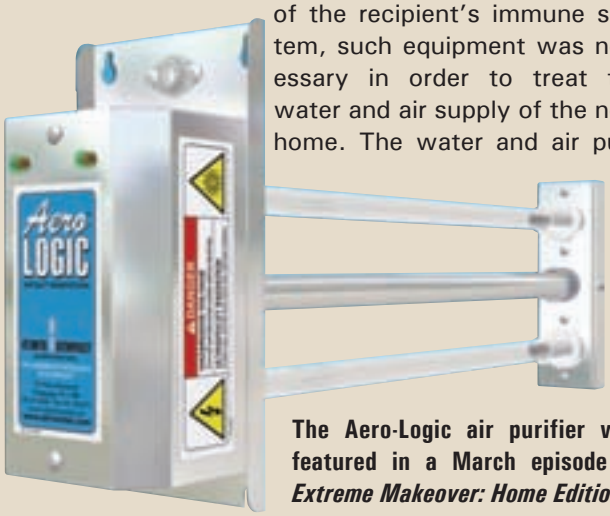
Gillman stated, "Mold in schools is costing Florida taxpayers millions of dollars. The cost of closing schools and displacing students, liability lawsuits, workers compensation claims and concerns over student health makes this technology a safe and cost effective tool in the fight against mold related health issues."

Similarly, Pittsburgh-based PDG Environmental Inc. announced in April that its revenues and net income for

Atlantic Ultraviolet Provides Purifiers for Extreme Makeover Episode

Atlantic Ultraviolet Corp., a Long Island, N.Y.-based manufacturer of air and water purification systems, was chosen to be a part of an episode of the ABC-TV series *Extreme Makeover: Home Edition.*

The manufacturer provided the *Extreme Makeover: Home Edition* design team with its Bio-Logic™ water purifier and AeroLogic™ air purifier for use in the show's March 13 episode. Due to the sensitive nature of the recipient's immune system, such equipment was necessary in order to treat the water and air supply of the new home. The water and air purifiers both utilize ultraviolet technology.



The Aero-Logic air purifier was featured in a March episode of *Extreme Makeover: Home Edition.*

In October 2003, a softball-sized tumor was discovered on Kassandra Okvath's kidney. Shortly thereafter, 8-year-old Kassandra was diagnosed with cancer. Her one wish was to makeover the Children's Hospital Floor at the University Medical Center in Tucson where she has been receiving treatment. The producers of *Extreme Makeover: Home Edition* answered Kassandra's wishes for the hospital by painting the stark white walls, with the help of Disney Imagineering, with destination themes so that kids with cancer can feel like they are on vacation.

In a surprising twist, while one team renovated the hospital wing in Tucson, another *Extreme Makeover: Home Edition* crew completely re-built the Okvath home in Gilbert, Ariz., as well.

"We at Atlantic Ultraviolet Corp. are honored to be able to supply the Okvath family with the equipment for safeguarding the air and water of the new home," said Yvonne Wong, director of executive services for Atlantic Ultraviolet. "I am very pleased to see our products significantly impact an entire family's life, and that of a very courageous little girl."

www.ultraviolet.com or call 631/273-0500.

the fourth quarter rose sharply, thanks in part to its use of the ThermaPureHeat process.

The environmental and specialty contractor said its revenues for the fourth quarter ended January 31 were $15.5 million, a 72 percent increase over the $9 million recorded in the same prior-year period. Net income for the quarter grew 250 percent to $577,000, as compared to $165,000 a year earlier. Revenues for the year ended Jan. 31 were $60.3 million, a 68 percent increase over the $36 million in the same prior-year period.

"Our accomplishments this year extend beyond the figures, as we continued our successful diversification into the mold/restoration industry," said chief executive officer John Regan. "We are seeing increased interest in the process from many of our market segments such as home builders, the hospitality industry and schools. PDGE's response to the four devastating hurricanes in Florida clearly demonstrated our ability to quickly respond with necessary resources to large area-wide disasters. We approach fiscal 2006 with positive momentum and look forward to continued progress in the coming year."

www.sfcsmold.com and www.pdge.com.

MARCOR Announces Two New Florida Offices

MARCOR has expanded its presence in Florida to support its hurricane clean-up efforts.

Spurred by the demand for building restoration and environmental services that followed the four successive hurricanes to hit Florida in 2004, MARCOR Remediation Inc., of Hunt Valley, Md., has opened two new offices in the Florida cities of Palm Beach and Pensacola.

During last year's hurricanes in Florida, the company had crews of 200 people working 14-hour days in flood-damaged areas from Virginia, Pennsylvania, Ohio, Georgia, Texas, Maryland and Massachusetts. Since then, the company has been called upon by many other Florida businesses, leading to the decision to expand the company's Florida presence.

"We believe MARCOR can make a significant contribution to Florida's recovery following the catastrophic events of last year," said Michael Burke, vice president and regional manager. "From the time we responded with preventive measures before the hurricanes hit, such as sandbagging and boarding up retail and commercially-owned properties, to our restoration services since then, we have seen the vast amount of work that must be done in the years ahead."

www.marcor.com or call 800/547-0128.

Water Damage Franchise Aims to 'Flood' Marketplace

Based on service demand and the rising level of interest in its niche franchise opportunity, 1-800-WATER DAMAGE, a Seattle-based water damage restoration company, has projected that it will have 500 franchises on the U.S. map in the next five years. The franchise currently has 68 locations across the United States and another 25 set to open by year's end.

The franchise's technicians offer homes and businesses that have experienced water damage an array of services including: water extraction; basement, crawl space and structural drying; dehumidifying; removing odors; sanitizing; and disinfecting. Technicians respond to customers within 90 minutes.

"The response from entrepreneurs interested in opening 1-800-WATER DAMAGE franchise locations has been amazing," said Lisa Bongi, president. "It exemplifies the growing demand for our services in communities around the country. We are the only franchise to fill the niche for water damage repair, which is why available franchise territories are going almost as fast as we offer them."

1800waterdamage.com or call 800/940-9745.

IN ACTION

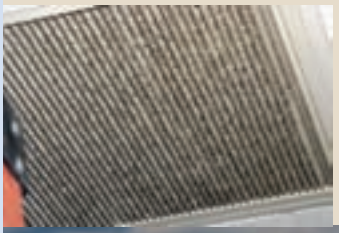
Taxpayers Foot the Bill for Mold at Governor's Mansion

At the end of the legislative session Louisiana governor Kathleen Blanco and her husband Raymond were forced to vacate their Baton Rouge residence to make room for workers clearing the mansion of mold. The couple retired to a rented room for the summer so that construction workers could clean the air ducts and replace the HVAC system in the Governor's Mansion. The project is expected to cost $525,000 upon its completion, money that will be coming from the state's taxes, according to a report prepared by The New Orleans Channel.

continued on page 21

Ferry's Lease Terminated Over Mold Dispute

Scotia Prince Cruises (SPC), based in Moncton, New Brunswick, announced in April that it would cancel its 2005 season due to continued mold contamination in the International Marine Terminal (IMT) in Portland, Maine. As a result, city officials in Portland terminated the ferry's lease and a 35-year relationship, criticizing SPC for a breach of contract and for requiring the city to make expensive repairs allegedly without having any intention of setting sail.



The ferry regularly operates between Portland and Yarmouth, Nova Scotia. Since August 2004, however, concerns over mold in the IMT have been a source of consternation for officials on both sides of the dispute. The terminal was built in 1909 as a warehouse, but has been used since as a ticket office, with waiting areas and staff offices.

Scotia Prince Cruises' 485-foot cruise ferry sailed on smooth waters on its route between Maine and New Brunswick, but the ship's management faced mold problems on land.

According to information provided by SPC, the ferry company delivered a notice to the Portland city mayor and city manager on August 23, 2004, stating that testing had found high levels of mold in the IMT. It claimed its employees were exhibiting a variety of symptoms attributed to mold. The cruise line then prevented its employees and clients from using the building and operated for two months from tents outside the building.

On September 1, 2004, the city responded to the allegations with a media release stating that public waiting areas at the IMT were safe for use, but that SPC's indoor offices space should not be used until remediation had been performed.

In a statement, assistant city manager Larry Mead said, "While the waiting area also has mold, the types found are harmless even in great quantities and do not call for any remediation."

Press statements issued by the city of Portland said remediation would be completed by the end of September—then the end of December. In early January, demolition of the warehouses used as offices by SPC began.

SPC also reported that the National Institute for Occupational Safety and Health (NIOSH) conducted a health hazard evaluation (HHE) on two occasions in March 2005. The HHE team consisted of two medical doctors and two environmental technicians.

In its report on the evaluation the NIOSH team stated, "The whole structure is probably going to have a problem being made watertight, so there may always be water intrusion issues and therefore any time you have water intrusion issues you have mold recurrence issues … The specific problem with the HVAC system, I don't think that has been fixed."

According to Portland transportation director Jeff Monroe, appropriate facilities had been provided for the ferry by the end of March 2005.

"New modular offices, a 6,000-square-foot warehouse and a newly converted waiting room at the International Marine Terminal are just about ready for the staff and visitors of Scotia Prince Cruises," stated Monroe.

A report from Bangor, Maine's WLBZ News stated that the city had reportedly spent $1.2 million fixing the terminal. The building's frame was treated, new mold-resistant drywall was installed and the entire first floor and two restrooms were gutted. Officials also said the city replaced an old warehouse and created 5,000 square feet of modular office space.

However, SPC argued that among other problems, the waiting room had still not been remediated properly. It attributed the majority of problems to its claim that the city had never fixed the source of leaks, so that mold growth would continue to occur even after renovations. In fact, federal employees who shared the offices moved out of the building at the beginning of April because of the extent of the problems.

"It is self evident that we cannot subject our employees or passengers to an unsafe environment. As such we are forced to cancel the 2005 season due to the city's failure to meet its leasehold obligations to provide Scotia Prince Cruises with safe and appropriate facilities from which to operate," said Hudson.

The city has reportedly begun searching for a new company to offer ferry services.

"No question, it's tax dollars and it was publicly bid," said facility planning and control director Jerry Jones in the report.

Jones added that cleaning the ducts in the historic building would be difficult because it involves breaking through plaster. The ductwork in the mansion dates to 1963, when the mansion was built.

The article added that former governor Mike Foster had resisted recommendations to have the remediation done when he lived in the mansion. Instead, he put filters over the vents when they started spewing "black soot."

During a visit to the mansion, Foster told the paper that he had recommended to Raymond Blanco a possible alternative to a two-month project: the use of ozone, which Foster said he found on the Internet could be used to destroy anything living in the ducts within two days. He described the state's recommended method as the "old-fashioned, expensive way."

Under the state's plan, construction workers will replace some of the ducts, install access panels to make reaching them in the future less difficult, seal storage areas in the attic, remove asbestos and update the air and heating to improve temperature control.

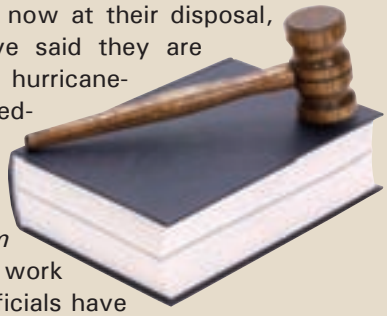
Texas Department of Health Accredits EVRX as a Mold Training Provider

The Texas Department of Health, in a Texas mold-licensing program, has accredited EnvironmentalRx (EVRX) as a mold-training provider. The company, based in Farmingdale, N.Y., encompasses health related services, indoor air quality, mold testing/remediation products and information technology. Texas is the first state to incorporate mold licensure for mold remediation assessors, technicians and workers.

The coursework ranges from 20 to 40 hours, according to information from the company. Upon certification the applicant is qualified for state licensing and may operate as an individual or company business. EnvironmentalRx has worked with the Texas Department of Health in conjunction with state requirements in order to prepare students to receive their state license.

Currently, the company has established a school in Conroe, Texas, and it will utilize conference centers throughout the state for educational programs. Within the first ten days of January, 140 students had enrolled for the February course.

Florida Courthouse Announces Remediation Plan



With $1.8 million now at their disposal, federal officials have said they are ready to clean up hurricane-related mold at the federal courthouse in West Palm Beach, according to a June article in the *Palm Beach Post.* With work begun on July 7, officials have predicted that the 32-year-old building will reopen in December.

Jacobs Engineering Group, a Pasadena, Calif.-based firm, has been hired to manage the courthouse clean-up.

"They're very experienced with working with us on some of our complicated projects," said Thomas Walker, assistant regional manager for public buildings at the U.S. General Services Administration in Atlanta. "We consider this a complicated project."

Walker told the *Post* that the cleanup requires gutting walls, overhauling the ventilation system and peeling away vinyl wall covering that traps mold. Workers will also replace windows and remove and clean every piece of furniture to prevent a recurrence of mold growth.

According to an earlier article, the decision is still out on whether to install new drying equipment designed to prevent future mold growth.

The 32-year old courthouse has been closed since November 19, when tests revealed the presence of mold throughout the building. Hurricanes Frances and Jeanne were blamed for the water damage that led to the mold growth.

For the months that the building has sat empty, federal court officials have been traveling to courthouses in Fort Pierce, Fort Lauderdale and Miami for hearings and trials, according to the article. A related article in the *Post* reported further confusion when a woman convicted of drug trafficking flew in from the Bahamas and waited at the closed courthouse without having been notified of the change. Meanwhile, federal court officials have rented more than 20,000 square feet at a nearby building to serve as temporary administrative offices. Judges and lawyers staying in hotels and commuting long distances have added to rocketing costs.

DISINFECTANTS

Global Encasement Inc. Offers DeMold™ Disinfectant

Global Encasement Inc. of Union City, N.J., is offering its DeMold ready-to-use water-soluble, biodegradable, aqueous sanitizer and disinfectant for the elimination of all types of bacteria, viruses and fungi, including mold, mildew, moss and algae.

According to the company, a study from a third party independent accredited lab showed the product to have a 99.99-percent effectiveness in eliminating mold and mildew at 30 minutes after the time of application. The disinfectant is suitable for interior and exterior uses, such as over roofing, siding, walls, floors, ceilings and all porous and non-porous surfaces. The non-toxic product contains no solvents, volatile organic content or ozone depleting substances, and is safe to use around children and pets. It is EPA-registered, NSF-listed and USDA-approved.

The product has a coverage rate of 300 to 500 square feet per gallon and is packaged in 5-gallon pails or 55-gallon drums.

www.encasement.com or call 800/266-3982.

BioBlast Creates Barrier Against Mold

Microbe Guard, based in Maple Grove, Minn., offers a formula that incorporates EPA-registered antimicrobials and disinfectants to prevent the growth of mold, mildew, fungus and bacteria stains on treated surfaces. Once applied, BioBlast creates a permanent, invisible, positively charged barrier on all surfaces that prohibits the growth and re-growth of mold, mildew and fungus stains on the treated surface. BioBlast works against mold, mildew and algae, as well as bacteria that cause odor, staining and discoloration, as a static agent. The patented product is formaldehyde-free, safe and easy to apply, according to information from the company.

When applied by a certified applicator, all surfaces treated with the product are covered by a 10 year warranty. New construction structures are covered by a 25 year warranty.

www.microbeguardinc.com or call 866/601-6653.

SOFTWARE

MoldTech Software® Developed Around Mold Inspectors' Needs

MoldTech Software, from Core Environmental Corp. of Palm Springs, Calif., was developed and built around the specialized needs of mold inspectors and indoor air quality professionals. It was designed to adapt to users needs, giving them a tremendous amount of power with minimal learning curve. The software is supported and endorsed by the ESA, IAQA, IESO and IAMM.

The MoldTech PDA® inspection module is an easy-to-use, menu-driven application that allows the user to quickly and efficiently document the inspection process while ensuring the fulfillment of protocols during the inspection. The modular product includes the MoldTech PDA Inspection Module for use on a pocket PC PDA and the MoldTech report generator for use on a Windows PC.

Starting with the gathering of client data, property information and documentation of the conditions surrounding the inspection, the PDA inspection module is designed to clearly and logically step users through the inspection process. A checklist section allows the user to document mold related issues and water intrusion. Along with providing almost instant documentation of each issue, MoldTech allows users to quickly input the sampling chain-of-custody data and provide client reports with instantaneous preventive issues documentation.

The PC component of the software, the MoldTech report generator, provides users with high-quality, instant reports. Selecting the inspection name from the survey list immediately populates every issue entered in the field on the PDA inspection module with professionally-written text. Each report provides a complete description of the problem, an explanation of the nature of the issue and a recommendation for remedy. The automated report text is written in "liability-neutral" language and has been reviewed by an attorney for the user's protection. In addition, nearly every aspect of the report is customizable.

www.moldsoftware.com or call 866/665-3121.

SMP Disinfectants Remove Mold from a Variety of Structures

SMP-101 and SMP-102 disinfectants, from SEI Chemicals of Northridge, Calif., are able to kill and remove mold, algae, fungi, moss, bacteria and all other microbiological life forms.

The product, which disinfects on contact, is simply sprayed onto concrete, wood, metal, fiberglass or any painted surfaces. Once the product has sufficiently penetrated the surface, it can be washed with a rag, sponge, brush or light pressure washer rinse. The disinfectant is non-toxic and biodegradable, and is suitable for use in duct work, refrigerated food storage areas, all food processing facilities, public washrooms, marine vessels, public fountains, historical monuments, building facades and high humidity areas.

www.seichemical.com or call 818/998-3538.

Antimicrobial Agent Available for Architecture

Cathedral Stone Products Inc. of Hanover, Md., is offering its D/2 architectural antimicrobial for fungal growth on architectural monuments. According to information from the company, the safe, easy-to-use liquid was designed to remove a broad spectrum of biological deposits from hard environmental surfaces. A contact time of one to two minutes will loosen most fungal and algal deposits with manual scrubbing and is typically sufficient for antibacterial disinfection.

Growth of bacteria, fungi, algae, lichens and mosses contributes significantly to the degradation of many types of construction materials, and can be disfiguring. D/2 can be utilized to control this problem on outdoor sculpture, monuments, decorative fountains, gravestones and tombs. Biological growth found on some individual building features (such as parapets and zones of ground contact) or materials (such as stucco) can also be treated with D/2, although it is not a general purpose architectural cleaner. The product will keep surfaces clean for a minimum of one year and has no detrimental effects on masonry. It is non-toxic and biodegradable. In addition, D/2 is an effective antibacterial agent, as tested in compliance with EPA efficacy data guidelines DIS/TSS-10.

www.cathedralstone.com or call 800/684-0901.

Sporicidin Disinfectant Rated by UMD Researchers

Sporicidin International, based in Rockville, Md., is offering disinfectants for mold remediation. According to information provided by the company, the product was rated highly in a study by researchers at the University of Maryland for its residual effect inhibiting the growth of mold for four

months after application. The study compared the Sporicidin product to household bleach, which is the basic recommendation from the Centers for Disease Control and Prevention for cleaning mold.

The product is FDA and OSHA compliant and registered with the U.S. EPA for continuous bacteriostatic activity for six months. The product is registered for use as a hospital disinfectant.

www.sporicidin.com or call 301/231-7700.

INFRARED DETECTORS

Ircon Offers Flexible Thermal Imaging to Serve a Wide Range of Needs

Ircon Inc. of Niles, Ill., has designed its new digiCam/2-IR infrared thermal imaging camera series to make comprehensive thermal analysis flexible and easy. Combining thermal imaging capabilities, a simple-

continued on page 24

to-use interface and compact, lightweight industrial casing, digiCam/2-IR includes three camera series with progressive feature sets to serve a wide range of needs.

The M Series is available for maintenance applications, such as equipment safety monitoring, predictive maintenance and energy efficiency auditing, when basic thermal imaging and reporting capabilities and a temperature range up to 662° Fahrenheit will do the job. The P Series for process applications, such as simple process monitoring and quality control, is particularly useful when advanced thermal imaging, basic reporting capabilities, and temperature ranges up to 2192° Fahrenheit is needed.

The A Series was designed for analysis applications, such as complex monitoring, research, development and laboratory functions and advanced thermal imaging, comprehensive thermal data and high temperature ranges up to 2,192° Fahrenheit. These feature-rich cameras can save image files that include temperature data on all 19,200 pixels of the image, for analysis both on- and off-camera. The A series cameras also include a 2x electronic zoom, programmable image capture, text annotation and other features.

Each camera features a 5-inch, sunlight-readable color display, 180° articulating lens, video output port and Compact Flash port and PC software for off-camera image review and analysis. Three interchangeable lens options are available to serve different field of view needs.

www.ircon.com or call 800/323-7660.

New E-Series IR Camera Boasts High Resolution

The new, compact ThermaCAM® EX320 from FLIR Systems, a Boston-based manufacturer of infrared imaging systems, features a true, built-in 320 x 240 pixel array and provides four times the resolution of any hand-held camera its size and in its price range. In addition to a high resolution, maintenance-free, un-cooled FPA infrared detector, the EX320, the latest in FLIR's E-series line of IR cameras, boasts high thermal sensitivity (to 0.08° Celsius) and image quality (76,800 picture elements in each image).

A 160 x 120 detector has 19,200 pixels; however a 320 x 240 detector has 4 times the resolution at 76,800 pixels. This allows users to see all targets

ANTI-MICROBIAL COATINGS

Anti-Growth® Concentrate Available for Prevention and Remediation

A new solution for mold, mildew and algae prevention and remediation has been developed by Camden Products LLC of Elizabeth City, N.C. Anti-Growth Concentrate can prevent the growth of these organisms for up to two years on most exterior inanimate surfaces and up to five years on interior surfaces, including wood, drywall, concrete, brick, vinyl and tile, according to a company news release.

The new fungicide and algicide can be applied to roofs, siding, decks, patios, walls and floors to prevent the regrowth of fungi and algae, or during construction and renovation to prohibit potential growth. Pretreatment with Anti-Growth Concentrate during construction, combined with inspection and certification, can offer an added measure of protection. Anti-Growth also may be applied during the manufacture of certain products, such as lumber or drywall to minimize mold and mildew growth during shipping and storage.

Anti-Growth Concentrate was designed to provide superior long-term performance. It has been extensively tested, both in the laboratory and field, and is EPA registered. Available as a concentrate, Anti-Growth's diluted cost is only pennies per square foot. It is distributed through a network of dealers across the United States, excluding California.

www.anti-growth.com or call 252/335-1768.

clearly and identify problems with great ease, according to a company news release. It also allows users to see targets from far away and still get an accurate temperature measurement.

Calibrated thermal images can be captured and recalled using the EX320's on-board memory. Its radiometric jpeg image format allows the user to go back to any image at any time to add and remove spots, measure temperatures and perform analysis that may have been missed in the field. Thermal images and measurements stored in the camera's memory may be easily downloaded to a PC using ThermaCAM Quickview™ software (included) and standard USB or serial cables, for later retrieval and analysis.

The ultra-portable EX320 is built to operate in the harshest weather conditions and industrial environments. Dust and splash-proof, it meets IP 54 standards and will not seize up in either extreme cold or hot temperature variances. Its exclusive ambient temperature compensation (ATC) technology assures accuracy under the most challenging weather conditions.

Optional lenses including a telescope lens and a wide angle lens are available.

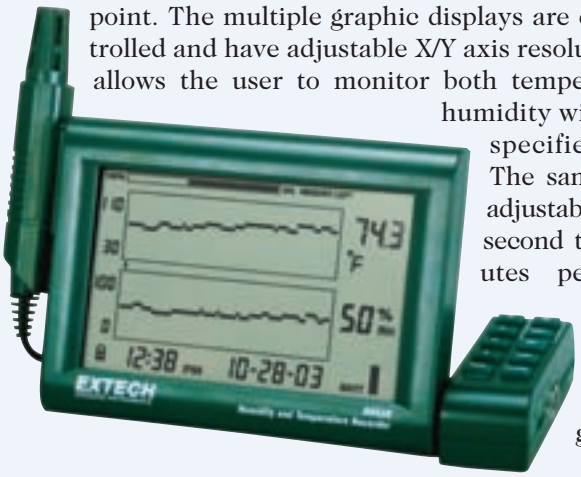
www.flirthermography.com or call 800/464-6372.

TESTING AND MEASUREMENT EQUIPMENT

Extech Instruments Introduces Graphical Humidity/Temperature Chart Recorder

Extech Instruments, of Waltham, Mass., has introduced its new humidity and temperature chart recorder, Model RH520.

The unit may be desk or wall mounted and provides simultaneous numerical and graphical displays of humidity (20 to 95 percent relative humidity) and temperature (-20 to 140° Fahrenheit). The RH520 also calculates dew point. The multiple graphic displays are cursor controlled and have adjustable X/Y axis resolution which allows the user to monitor both temperature and humidity within a user specified range. The sample rate is adjustable from 0.1 second to 200 minutes per sample, permitting daily, weekly or monthly graphs.



The RH520 features an internal memory that records up to 49,000 readings with time and date, and can be transferred to a PC for data record-keeping, analysis and printing. It has a detachable probe that extends up to 1 meter for measurements in enclosed environments. High and low set points trigger audible and visual alarms and an external remote alarm module is available.

The basic accuracy of the RH520 is 3.5 percent RH and 1.8° Fahrenheit/1° Celsius. It comes complete with a built-in stand, a humidity/temperature sensor and 3 AA batteries.

www.extech.com or call 781/890-7440.

Fluke Offers New 983 Atmospheric Particle Counter

Fluke Corp., of Everett, Wash., a manufacturer of test and measurement products, has introduced the Fluke 983 particle counter, a compact, lightweight test tool tailored for professionals in the heating, ventilation and air conditioning (HVAC) and indoor air quality (IAQ) fields.

The 983 particle counter features expanded data logging and six-channel particle size display (0.3 up to 10.0 µm), which allows users to run more tests faster and spend less time cycling through screens to get needed data. Its liquid crystal display includes a backlight. The Fluke 983 counts and logs up to 5,000 sample records, with selectable sample time, count data and programmable delay. Logged samples include date and time, particle counts, sample volume (cubic feet or liters), temperature (°C or °F) and relative humidity. Data can be displayed in totalize or concentration modes.

The tool is suitable for testing the level of airborne particulates in factories, offices and medical facilities. Users can check the effectiveness of air filtration systems, identify localized sources of particles and perform particle checks in such sensitive areas as clean rooms, food processing plants and hospitals.

The tool is lightweight (1.0 kg/2.2 lbs) and comes with a rechargeable NiMH battery and AC adapter. It features a comfortable hand strap and rugged rubber holster.

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

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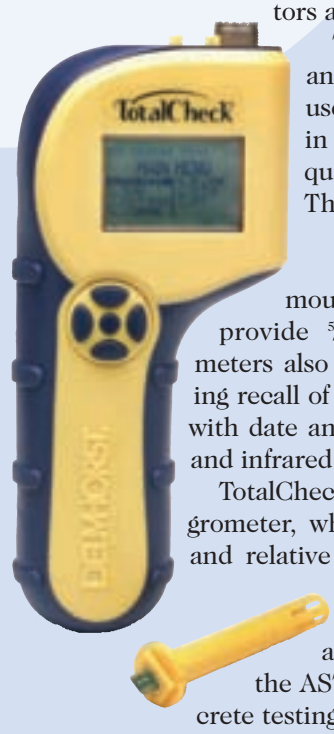
Delmhorst Introduces Two New Meters

Delmhorst Instrument Co. of Towaco, N.J., has integrated its pin and pin-less technologies to develop two moisture meters designed for home and building inspectors and IAQ specialists.



The new MoistureCheck and TotalCheck meters enable users to identify problem areas in all building materials by quickly scanning large areas. The pin-mode helps to locate the exact source of moisture. Integral contact pins mounted on top of the meter provide 5/16-inch penetration. Both meters also include full onscreen reading recall of up to 1,400 stored readings with date and time stamp, job grouping and infrared linkage to a PC or laptop.

TotalCheck also includes a thermohygrometer, which measures temperature and relative humidity (RH) and calculates GPP and dew point. The RH sensor is removable and conforms to the ASTM-F2170 standard for concrete testing.

www.delmhorst.com or call 800/222-0638.

RM Group Offers New Products to the Water Intrusion Testing Industry

The RM Group of Mound, Minn., is offering its patented Rain Maker spray rack, which was specially designed for water intrusion testing. Its two-minute setup time, versatility, durability and adherence to the ASTM E-331 standard make it the perfect choice for testing in the field or the lab. Made of anodized T-6 aviation grade aluminum, it is non-corrosive, lightweight and durable. Support legs feature spring-loaded pins to insure safety and stability and will extend long enough to test a second story window. Quick-connect hose attachment makes attaching the hose instantaneous, and the valve lever is very precise, according to information from the company. The pressure gauge is accurate and quick to attach as well. It disassembles into a compact carrying bag and can be checked as luggage at the airport.

www.sprayrack.com or call 952/220-5639.

CLEANERS

OneStep™ Designed to Clean and Protect

Custom Building Products of Seal Beach, Calif., has introduced OneStep Cleaner and Resealer as part of its TileLab® line of tile and stone care products. OneStep is a professional product that cleans and protects tile and stone surfaces from mold and mildew growth with a single-use spray and wipe formula.

Designed as a companion product to SurfaceGard® penetrating sealer, OneStep is a non-acidic and non-abrasive cleaner and resealer suitable for everyday use in both residential and commercial settings. It contains a small amount of SurfaceGard to protect and maintain tile, stone and grout surfaces. With each use, OneStep cleans and protects porous surfaces against stains, inhibits mold and mildew growth and extends and enhances the appearance of an installation.

According to company information, surfaces should be treated initially with SurfaceGard and then treated regularly with OneStep for maximum protection.

www.custombuildingproducts.com or call 800/272-8786.

CleanCoat™ Has a Range of Decking Maintenance Products

CleanCoat, through Wolf Distributing Co., offers several deck cleaning products, including CleanCoat Deck Cleaner & Brightener and CleanCoat Deck Mold/Mildew Inhibitor. According to the company, its deck cleaner is biodegradable, non-toxic and easy to use. Likewise, the mold and mildew inhibitor safely prohibits the growth of mold spores commonly found on deck surfaces. Both products work on wood and composite decking and one gallon of either cleaner can cover 2,000 square feet.

www.wolfdistributingco.com or call 877/315-6669.

THE BEST TIME TO DEAL *with* MOISTURE *in a* WALL IS BEFORE THERE *is a* WALL.

Mold. Mildew. Respiratory ailments. Lawsuits. Just some of the unwanted by-products of excess wall cavity moisture.

MemBrain™ from CertainTeed is a revolutionary interior vapor retarder for walls that actually "breathes," allowing excess moisture to escape before it becomes a problem.

You can apply **MemBrain** directly over unfaced CertainTeed insulation before you drywall. So you're not just insulating a building. You're helping to insulate yourself.

For a free demonstration kit and video, call 1-800-233-8990.

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Quality made certain. Satisfaction guaranteed.™

ROOFING • SIDING • WINDOWS • INSULATION • FENCE • DECKING • RAILING • FOUNDATIONS • PIPE

One-Third of Homeowners Have Water Problems

Nearly one-third of homeowners —31 percent—have experienced a water damage loss caused by a roof leak while one in five have had water damage caused by burst water pipes, according to a survey of 1,633 people sponsored by the Chubb Group of Insurance Companies.

"Despite the risks, many homeowners are not taking steps to help prevent water pipes from bursting and roofs from leaking, potentially causing thousands of dollars of damage," said Scott Spencer, worldwide home appraisal manager for Chubb Personal Insurance. "Burst pipes can cause very severe damage if they are hidden behind walls and the water runs for a long period of time. Homeowners who turn their heat off or to less than 60 degrees when they go on vacation are raising their risk of water damage from burst pipes."

Spencer urged homeowners to take preventative measures and check their insurance policies or speak to their agents about their coverage in the event of a water damage loss (*see charts below left*).

Room for Improvement

Thirty-seven percent of survey respondents said water had damaged their homes; many also indicated that they did not take basic steps to prevent water damage.

Steps to Prevent Water Damage	Respondents Who Took Action
Inspecting washing machines	69%
Inspecting water heaters	39%
Shutting off water and drains when closing vacation homes	59%
Turn down heat during cold weather months (less than 60 degrees)	61%
Installed moisture or water detection system	3%
Losses covered by insurance	**49%**

Homeowners Losses, 1999-2003

(*For homeowners multiple peril policies. Excludes tenants and condominium policies.*)

Year	Water damage and freezing		Total homeowner losses	
	Claim frequency[1]	Claim severity[2]	Claim frequency[1]	Claim severity[2]
1999	2.27	$2,809	9.33	$3,509
2000	2.45	3,140	8.82	3,823
2001	2.33	3,302	8.66	3,999
2002	1.90	3,683	7.57	4,251
2003	2.06	4,024	7.85	4,642
Average[3]	**2.20**	**3,371**	**8.44**	**4,025**

1 Claims per 100 house years (policies).
2 Accident year incurred losses, excluding loss adjustment expenses, i.e., indemnity costs per accident year incurred claims.
3 Weighted average.
Source: Insurance Services Office.

Australia's Heavy Rains Leave Insurance Storm in Wake

The damage bill from a storm on February 3 in Mellbourne, Australia, is expected to run into tens of millions of dollars, as estimated by Australian insurance companies and employer groups. The most common claims are expected to be concerning trees that fell on buildings and cars and water damage to homes and businesses.

An article in *The Age* reported that the damage was spread over a wide area of the country's east coast.

Rod Frail, spokesperson for the Insurance Council of Australia, told the newspaper, "Any water damaged possessions, such as carpets and soft furnishings, can be removed, but they should be kept in case they need to be inspected by the insurer."

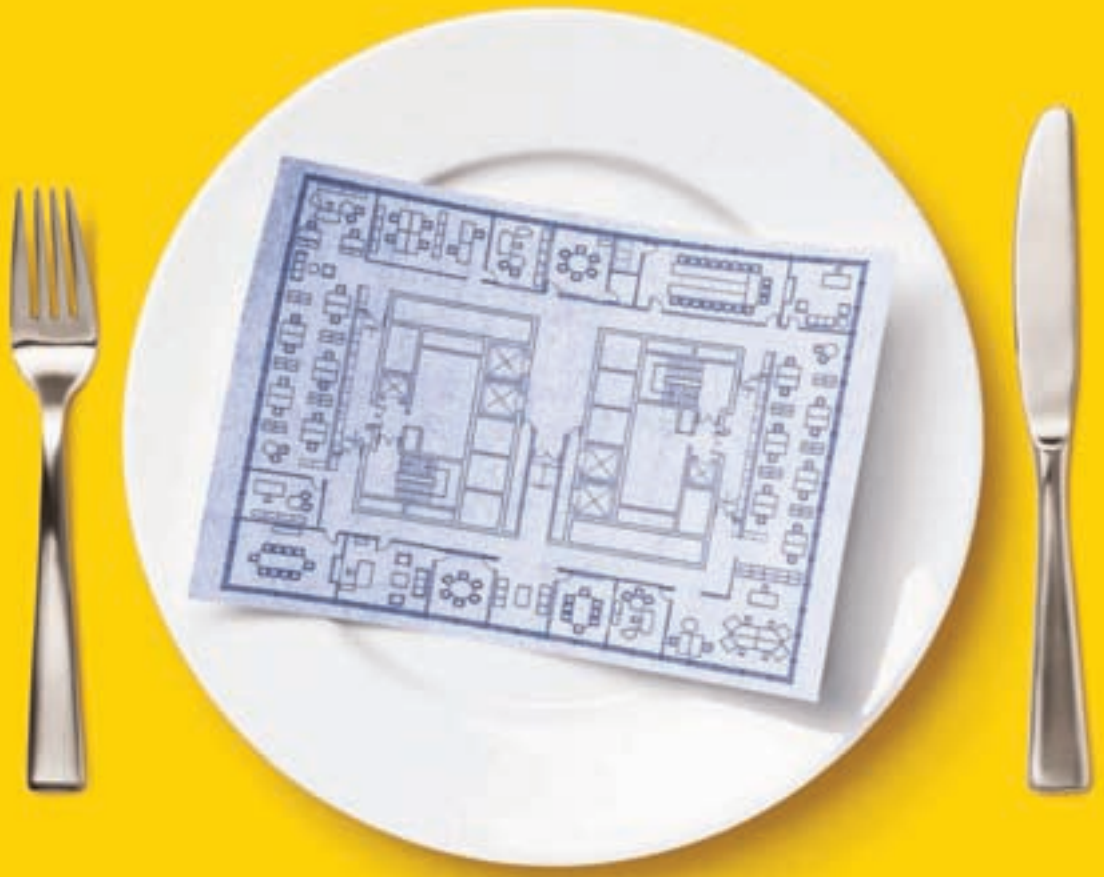
Frail also advised people to contact their insurer before authorizing major repairs.

Insurer CGU reportedly needed extra claims staff to cope with more than 1,000 calls and 700 claims from Victorians. Claims and assessing Victorian manager John Simpson said most claims were for home damage caused by strong winds and rain. A Promina spokesperson said more than 3,500 calls were made in that area in only 24 hours.

The Age reported that in December 2003 a hail storm hit Melbourne that caused $124 million in damage—the largest storm bill since 1977 according to the Insurance Disaster Response Organization. According to the article, the damage from this storm covered a much larger area.

1. Most walls inside buildings are made of paper-faced drywall.

2. Mold eats paper.



3. If you eliminate the paper you reduce the chances for mold.

4. Georgia-Pacific introduces DensArmor Plus™ paperless drywall.

For office buildings, our revolutionary paperless drywall provides moisture and mold resistance. For free literature on DensArmor Plus, call 1-800-BUILD GP. For technical information, call 1-800-225-6119 or go to www.densarmorplus.com.

GP G-P Gypsum
a Georgia-Pacific company

COME TOGETHER

Three Shows, Three Industries, One Thing in Common

By Megan Headley

No matter what industry you're in or what part of the country, there's a trade show out there for you—and for us as well, since **Moldmag** has been a part of several shows already this year. We had a field day in Vegas with the architects who aim to design dry building systems; gathered in Orlando with the contractors and manufacturers responsible for the HVAC systems that control humid air; and in Anaheim met up with the industrial hygienists and laboratory representatives who clean up the moldy mess left when something goes wrong.

Sometimes, however, it's important to take a step back and see how other industries are addressing mold and moisture problems. Here's your chance to see how "the other side" thinks about moisture management.

Industrial Hygienists Convene in California for the 2005 AIHce

American Industrial Hygiene Conference & Expo (AIHce)
May 21-26, 2005
Anaheim Convention Center in Anaheim, Calif.
6,500+ attendees
300+ exhibitors
120+ educational sessions
Next year's dates: May 13-18, 2006

Industrial hygienists (IH) and occupational and environmental health and safety (OEHS) professionals from across the country met in Anaheim, Calif., May 21-26, to celebrate OEHS innovation at the 2005 American Industrial Hygiene Conference & Expo (AIHce). More than 6,500 attendees were at the meeting co-sponsored by the American Industrial Hygiene Association (AIHA) and the American Conference of Governmental Industrial Hygienists (ACGIH®). The gathering also featured a three-day exposition with exhibits from more than 300 companies.

An environmental health and safety management symposium was offered along with a series of weekend professional development courses (PDC) that attracted approximately 2,500 registrations. The symposium featured Dr. John Howard, director of NIOSH, as the keynote speaker. In addition, more than 120 educational sessions were scheduled during the week.

In a presentation entitled I*ndoor Environmental Quality (IEQ): A 10-Year Case Study for Industry IEQ Guidelines*, Dr. Rajiv Sahay, laboratory manager for the Environmental Diagnostics Laboratory (EDLab™) in

Clearwater, Fla., presented the results of a study on airborne culturable bioaerosols to an audience of more than 450 industry professionals (*see Regulation Review, page 54*). The aerobiologist and his team hope to establish normal background bioaerosol numbers for building indoor environments. In his presentation, Sahay suggested that less than 350 CFU/m^3 should be considered a normal airborne fungi population.

Roger Morse, AIA, with Morse Zehnter Associates in Poestenkill, N.Y., presented a paper titled *Methods for Assessing Moisture and Remediating Mold Contamination in HVAC Systems*. He explained that mold does not ordinarily grow on surfaces inside HVAC units and ductwork—despite the fact that air in the units is typically at 100 percent relative humidity—because the wall of the unit is warmer than the airstream and above the dew point of the air in the airstream. However, moisture will accumulate in the bottom of the unit when a drain pan is not used or through fog in the airstream from the improper mixing of outside air. In either case, the duct liner, which can be a food source for mold, will become wet and all of the conditions are suddenly ripe for mold growth. Following these scenarios, Morse walked the audience through a step-by-step process for the remediation of mold in HVAC equipment: correcting the situation that allowed the mold amplification; removing the mold; sanitizing the equipment's surface; coating the equipment with a cleanable fungistat coating; performing a clearance inspection and sampling; and setting up an operations and maintenance (O&M) program to ensure regular cleaning.

The Anaheim Convention Center hosted industrial hygienists from across the country.

Dr. Blanca Cortes of EMSL Analytical Inc. in Orlando, Fla., spoke about *Regional and Seasonal Fungal Variability in the Continental U.S. From Spore Trap Analysis*. Her presentation asked for a definition of a "normal level" of mold spores. After examining fungal concentrations across five regions of the U.S. throughout the four seasons, the study showed a great deal of variability and significant differences between indoor and outdoor fungal concentrations over time. The study showed the highest outdoor fungal concentrations to be in the fall for the Northeast and Midwest and summer for the Southeast, Southwest and West. Inside concentrations were higher during the winter in the Southeast and Southwest, during summer in the Midwest and West and during the fall in the Northeast. Regardless of the outside spore species, the major indoor contaminants were typically Aspergillus/ Penicillium, Cladosporium, Ascomycetes and Basidiomycetes, representing approximately 90 percent of the total indoor spores. Stachybotrys outdoor concentrations represented less than 1 percent of the total fungal concentration although indoor amplification as high as 15 percent was recorded in the Northeast during the wintertime.

AIHA and ACGIH also offered several new elements to this year's conference agenda including "Tech Talks," small-group discussions on hot topics facing the profession, Ask the Expert sessions, Emerging Issues forums and an "Unsolved IH Mysteries" workshop. One Ask the Expert session focused specifically on mold, and the audience asked about everything from recent studies on the health impacts of mold to remediation in chronically wet environments to improvements in hotels' indoor environmental quality.

"All of the hard work to improve the quality of the sessions, and the overall content of the conference, paid off," said ACGIH chairperson Cindy Coe Laseter, CIH. "It's an exciting time in the field of industrial hygiene, and the program delivered by AIHA and ACGIH provided attendees with the information and tools necessary to excel in their careers."

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To learn more about these studies presented at AIHce:

Indoor Environmental Quality (IEQ): A 10-Year Case Study for Industry IEQ Guidelines
www.pureaircontrols.com or call 800/422-7873.

Methods for Assessing Moisture and Remediating Mold Contamination in HVAC Systems
www.mzaconsulting.com or call 518/283-7671.

Regional and Seasonal Fungal Variability in the Continental U.S. From Spore Trap Analysis
www.emsl.com or call 800/220-3675.

For more information on all studies, and next year's show, visit www.aiha.org.

COME TOGETHER
continued

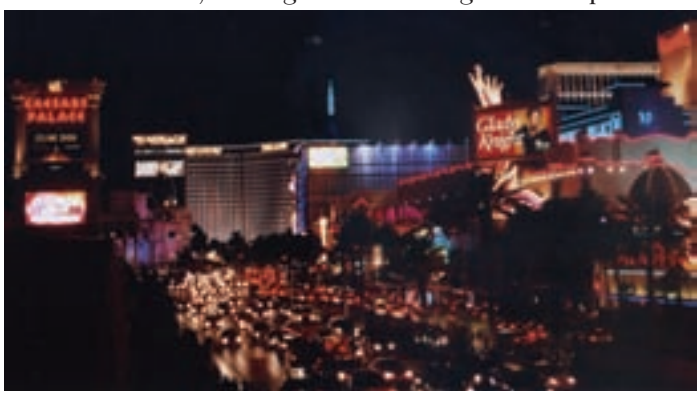
137th AIA National Convention Builds on Architects' Knowledge

American Institute of Architects (AIA) National Convention and Design Exposition

May 19-21, 2005
Mandalay Bay Convention Center in Las Vegas
24,444 registrants
860 exhibitors
150+ continuing education workshops and seminars and 100 expo education programs
Next year's dates: June 8-10, 2006

The American Institute of Architects (AIA) 2005 National Convention and Design Exposition on May 19-21 in Las Vegas concluded with a record number of architects, exhibitors and design industry professionals in attendance. The convention attracted 24,444 registrants, an increase of more than 10 percent over the previous year.

Among the special attractions at AIA Expo2005 were the New Product Center and eight product pavilions. In addition, the convention offered more than 150 continuing education workshops and seminars, 100 expo education programs, 60 professional tours and 50 special events. A survey of convention attendees indicated that AIA members chose continuing education programs as the top reason to attend the annual convention, according to an AIA news release.



More architects and design industry professionals than ever before flocked to the AIA show in Las Vegas.

For architects concerned about mold, the feature presentation came on the last afternoon of the show when Chris Decareau and Edward Lyon, both senior project managers for Simpson Gumpertz and Heger Inc., presented *Get the Mold Out! Preventing Mold Growth in Your Architecture*. Decareau began by explaining the causes of mold—nutrients, spores and moisture—in a triangle that imitated the already largely recognizable "fire triangle." The comparison worked to remind architects that mold is a problem that must be addressed, not only because it certainly can destroy buildings, but also because it can be effectively dealt with—like fire prevention—through measures in the design process.

For a solution, the speakers then visited the topic of building science, which they defined as the interaction of the exterior and interior of a building at the building envelope. They stressed that the transitions between these systems are the most likely places for moisture problems to occur and that coordinating those transitions is very much within the architect's scope.

Although other presentations touched briefly on mold as a problem for architects, a number of attendees noted that mold was not the buzz word at the 2005 seminars that it had been in previous years. However, a number of exhibitors attracted attention to the topic of mold with brief presentations on the show hall's floor. Icynene presented *The System Approach to Thermal Performance*, BPB offered *The Science of Specifying Moisture and Mold Control: Control in Framed Wall Assemblies*, Centria Architectural Systems demonstrated *Advanced Moisture Management with Architectural Metal Cladding* and Protecto Wrap Co. explained *Waterproofing of Exterior Decks*. In addition to getting some great tips on designing dry buildings, architects were able to get credit for attending these learning activities.

To learn more about these studies presented at the AIA Convention:

Get the Mold Out! Preventing Mold Growth in Your Architecture.
www.sgh.com or call 415/495-3700.

The System Approach to Thermal Performance
www.icynene.com or call 800/758-7325.

Waterproofing of Exterior Decks
www.protectowrap.com or call 877/271-9661.

The Science of Specifying Moisture and Mold Control: Control in Framed Wall Assemblies
www.bpb.com or call 866/427-2872.

Advanced Moisture Management with Architectural Metal Cladding
www.centria.com or call 800/759-7474.

For more information on all studies, and next year's show, visit www.aiaconvention.com.

AHR Expo® Celebrates 75th Anniversary with Record Number of Exhibitors

International Air-Conditioning, Heating, Refrigerating Exposition (AHR Expo)

February 7-9, 2005
Orlando Convention Center in Orlando, Fla.
45,000+ attendees
1,871 exhibitors
Next year's dates: January 23-25, 2006

For the first time in the 75-year history of the International Air-Conditioning, Heating, Refrigerating Exposition (AHR Expo), the show was held in Orlando, Fla., and as anticipated, it attracted a large number of industry professionals from around the globe. The 2005 AHR Expo set a new record for number of exhibiting companies, with 1,871 exhibitors taking up 372,955 square feet of exhibit space. The show was also one of the biggest shows in the Southeast in total attendance, with more than 45,000 attendees from all facets of the industry. The event was co-sponsored by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the Air-Conditioning and Refrigeration Institute (ARI).

As always, ASHRAE produced a large variety of sessions in conjunction with its annual Winter Meeting, which was held concurrently with the show. These included a free public session on *Battling Humidity in Southern Climates*.

During this session, Neil Moyer, a principal research engineer at the Florida Solar Energy Center (FSEC), said the battle against humidity boils down to the effectiveness of the envelope and mechanicals. Wayne Dunn, a principal of Sunbelt Engineering, added that in particular, problems occur when moisture is able to enter a building under negative pressure. He also noted that buildings must be able to balance moisture control with the management of sensible heat gain.

Don Shirey, also a principal research engineer with FSEC, proposed that it's more effective to use dedicated air systems for outdoor air only. For most commercial and institutional buildings in the South, Shirey said that outdoor ventilation air is the largest source of latent humidity load. The key, he suggested, is to separate outdoor air from air used from conditioned zones.

The AHR Expo featured exhibits for all facets of the industry.

A number of presenters also took part in a discussion on *Preventing IAQ and Moisture Problems in Schools and Commercial Buildings*. Lew Harriman with Mason Grant Consulting focused on ventilation as one of the biggest ways moisture gets into a building. An HVAC system really needs to dry all ventilated air, he said, although this has not been a conventional part of HVAC systems. Harriman also suggested that builders can keep air from drifting into the building if positive air pressure is maintained, bringing dry air in and pushing humid air out.

Dr. Mike Larranage, a principal consultant for Assured Indoor Air Quality, agreed that conventional HVAC systems cannot adequately dehumidify outdoor air in humid climates. He suggested that desiccant-based dedicated outdoor air systems could be useful, reducing condensation in HVAC systems and components. Focusing on schools, Chuck Campbell, vice president and general manager at Munters, noted that it's important to look at the needs of individual areas in the building: the needs of the classroom environment will be different from the gym or library. Dehumidifying outdoor air coming in, pressurizing the building and separating sensible and latent loads by using equipment designed for each are some suggestions he offered for addressing the unique needs of schools and large commercial buildings.

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To learn more about these studies presented at the AHR Convention:

Battling Humidity in Southern Climates
- **www.fsec.ucf.edu or call 321/638-1000.**
- **www.sunbeltengineering.com or call 904-737-5700.**

Preventing IAQ and Moisture Problems in Schools and Commercial Buildings.
- **www.masongrant.com or call 603/431-0635.**
- **www.aiaq.com or call 214/855.0222.**
- **www.munters.us or call 210/651 5018.**

For more information on all studies, and next year's show, visit www.ahrexpo.com.

The Next Best Thing to Being There

You can't get the full experience of any show without taking a look at the exhibits on the show floor, so **Moldmag** is offering a glimpse of just a few of the products we discovered in the moisture control arena.

GreenGuard Undergoes ICC Testing

According to information from Pactiv Corp. of Lake Forest, Ill., the company's GreenGuard fanfold residing underlayments and insulation board both performed favorably when evaluated in accordance with the International Code Council Evaluation Services (ICC-ES) criteria for foam plastic panels used as weather-resistive barriers (AC71).

Both products were tested under weatherization, water penetration under simulated wind exposure and hydrostatic head pressure testing.

The fanfold products were subjected to tests that included large-scale water penetration testing of a wall assembly, where the products were installed over wood sheathing to stimulate both new and existing construction applications. The insulation board underwent similar testing, where it was installed directly over wood framing to simulate a worst-case new construction application.

www.green-guard.com or call 800/241-4402.

Reward Wall Systems Presents Reports on Moisture Performance in iForms

Reward Wall Systems, a manufacturer of insulating concrete forms (ICF), based in Omaha, Neb., is now offering a series of nine research reports on moisture issues in ICF construction. The reports are based on research performed by Construction Technology Laboratories Inc. (CTL). According to a news release from Reward, the reports provide background information on moisture issues in every stage of ICF construction.

"For years, contractors have traded anecdotal information about moisture issues affecting ICF construction, but we have had no solid basis for understanding the complexities each builder faces," said Ed Storm, president of Reward. "These comprehensive reports, founded on research performed by one of the most reliable laboratories in the country, are invaluable tools for the entire industry."

The nine reports are: *Reward iForm Wall as an Air Barrier System; Reward iForm Wall as a Vapor Retarder; Condensation; How Moisture Affects EPS Insulation; Moisture in Concrete; Effects of Rain and Snow on Reward iForm During Construction; Avoiding Moisture Problems at Penetrations, Windows and Doors; Infiltration of Moist Air;* and *Preventing Moisture Problems in Below Grade Walls*.

The reports are available for free online at www.rewardwalls.com/techtips.

www.rewardwalls.com or call 800/468-6344.

American Ultraviolet Introduces Sapphire

American Ultraviolet Co. of Lebanon, Ind., is introducing its Sapphire series germicidal air purification system. Designed for use in residential and light commercial installations, the Sapphire series can be used for both coil and air stream disinfection. As air passes through the Sapphire's emissions, its ultraviolet light instantly kills any existing airborne microbes.

This high output UVC fixture is offered in one and two lamp configurations in lengths of 14-, 16- and 24-inches to fit a variety of airflow rates and coil and duct configurations. One fixture in the return air duct and one on the coil will provide adequate sterilization in the average home, according to company information.

www.americanultraviolet.com or call 800/288-9288.

Cosella-Dörken Introduces New Waterproofing for ICFs

Fastening points on insulated concrete forms (ICFs) are clearly visible through the new DELTA®-MS Clear, a see-through waterproofing for ICFs from manufacturer Cosella-Dörken Products Inc. of Beamsville, Ontario. Company information says that the product can be installed quickly and accurately.

A heavy-duty, dimpled sheeting, DELTA-MS Clear provides top protection for below-ground ICFs against moisture in all its forms. It stops groundwater with an impermeable barrier that is unaffected by freeze-thaw cycles, acids or other agents in the soil. Behind its dimpled structure is an air gap. Any water entering this space flows down the membrane to the footing drains. The same air gap allows ventilation of the foundation. Water vapor is drawn away from the ICFs to condense on the DELTA-MS Clear, which is colder because of its contact with the earth.

www.DeltaMS.com or call 888/4DELTA4.

Fortifiber's Moistop Ultra B Introduced for Concrete

The Fortifiber Building Systems Group of Reno, Nev., has introduced its Moistop Ultra B underslab vapor retarder, a component in the group's moisture control system for concrete slabs engineered to address commercial applications.

The 12-mil polyolefin film was manufactured from ISO certified virgin resins and has a water vapor permeance of less than .02 perms. The vapor retarder also features high tensile strength and puncture resistance, as well as resistance to chemical or environmental attack, according to company information. It is supplied in seamless 12-foot wide rolls, center-folded to 6 feet for ease of handling and designed to roll out quickly. According to a company news release, Moistop Ultra B exceeds ASTM E-1745-97 Class B requirements for underslab vapor retarders.

www.fortifiber.com or call 800/443-4079.

DryKor Offers DryLine 2005 Series

Fayetteville, Ga.-based DryKor's DryLine 2005 series provides dehumidification, cooling, heating, filtration and purification for localized and light commercial applications. According to company information, the dry conditioning unit treats the primary source of humidity—outdoor air—in addition to solving indoor moisture problems.

The unit was designed to improve indoor air quality through an active filter that removes up to 94 percent of microorganisms and air-borne bacteria and 77 percent of particles larger than 5 microns and reduces mold and mildew. It also eliminates condensation and deterioration of building materials, according to information provided by the company.

The unit features independent humidity and temperature control. It can be used in stand alone or in conjunction with an HVAC system in new or retrofit applications.

www.drykor.com or call 678/817-0299.

A New Insurance?

Addressing Mold Insurance on Commercial Construction

by David J. Dybdahl and Edward M. Carroll

The introduction of universal mold-related claim exclusions in commercial, residential and professional liability insurance policies has left many involved with construction projects virtually uninsured for mold-related damages. Developers, contractors, owners and their lenders no longer have insurance protection in their traditional insurance programs for most liability or property losses in anyway related to mold.

The need for prospective insurance on mold-related damages is expected to increase dramatically as all of the parties involved in the construction of new buildings come to grips with the long ranging risk management implications of universal mold exclusions in property and liability insurance policies.

Anticipating the need for mold insurance products, we gathered a small team of individuals knowledgeable about the key principles associated with building durability, along with environmental insurance experts and began work in 2001 on an insurance policy. We also gathered data from trial lawyers, policy holder advocacy groups and insurance companies on mold-related claims in order to develop insurance rates.

Our objective was to help manage the environmental and water intrusion loss exposures of commercial construction projects. The insurance product designed for this purpose is called real estate environmental liability

"To develop this insurance product the design team married two important fields: HPR loss control engineering and building science."

insurance with highly protected risk coverage for mold (REEL/HPR/Mold).

To develop this insurance product the design team married two important fields: HPR loss control engineering and building science.

Putting Mold Risks into Perspective

The Insurance Information Institute estimates that mold losses cost insurance companies three billion dollars in 2002. In addition to these losses, personal injury claims for mold-related injuries could be at least this high. To put these loss figures into perspective, fire losses were about twelve billion dollars in the same year. From a risk management perspective, the big difference between mold losses and fire losses is that fire losses are universally insured today in standard insurance programs, while mold-related losses universally are not.

With mold-related losses equaling approximately one out of every four fire claims, being completely uninsured for mold in new construction projects is not likely to be a long-term option for the parties involved. Eventually the project finance community will figure out that the insurance industry has dumped billions of uninsured mold-related losses back into the economy with the successful introduction of universal mold exclusions in virtually all insurance policies sold today. Without prospective insurance, project financing could dry up as lenders and financial rating organizations come to grips with collateral that is virtually uninsured for mold-related damages and firms that are now completely uninsured for the potential toxic tort liabilities associated with mold.

Something Old: Loss Control Services

Insurance companies have long known it is less expensive to prevent a loss than to pay for one after it has occurred. This is especially evident in boiler and machinery insurance. Many years ago, insurance companies created specialized engineering capabilities to inspect boilers to identify problems before a boiler exploded and took the building and the occupants with it.

By pre-funding loss control services into the insurance premium, insurers were able to avoid incurring large losses under their polices. This gave the insurer offering engineering services a competitive advantage over insurance companies that merely paid for losses after they were incurred.

Over time, the insurance products sold to these highly engineered risks became known and marketed as highly protected risk (HPR) insurance policies. These same HPR engineering concepts were utilized to develop

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Are You Worth The Risk?

Risk is gauged based on how the owner/general contractor controls moisture during construction and what kind of proactive testing is completed during the construction and prior to ownership. A couple of examples provide some insight into the type of questions asked during the review process.

- **Prevention during construction:** what do the owner and general contractor require for protection of building materials during construction? Have the owner and general contractor budgeted for drying and humidity control—particularly during the finishing stages of the project? Thorough, written and audited prevention plans are proving to lower the risk for moisture damage in new construction and renovation projects.

- **Building envelope example:** how is the exterior wall designed, and what level of detail is provided in the drawings/specifications to ensure the plan is executed? For example, in a hot-humid climate, the review would focus on the location of the primary air and vapor barrier and whether the exterior wall design includes any unintentional internal vapor barriers. Such a design limits the drying ability for the wall and therefore presents higher risks for moisture damage and mold growth over time.

- **HVAC:** who designed the system(s), and what controls have been selected? The assessment focuses on whether the system has the ability to control dew point within the building over the majority of a "typical" year and whether the system(s) can maintain the desired pressurization across the entire building.

- **Testing and commissioning:** what does the owner/general contractor require of envelope testing (windows, other critical penetrations for air/water leakage) and the HVAC system (pressurization)? Well-detailed testing plans during construction and at the end of the project prior to transfer can reveal performance problems before the ownership is transferred.

- **Operations and maintenance (O&M):** the best designed buildings can have problems if not operated and maintained appropriately. Specific to the building type, hours of operation and climate, what O&M instructions are provided to the new building owner(s)?

A New Insurance?

continued

the REEL/HPR/Mold insurance product for new construction.

Something New: Building Science Principles

The key to predicting and controlling loss exposure is to assess each structure using building science principles as an assessment tool; that is, to look at the building in terms of air, heat and moisture flows. A structure designed and built with a good understanding of how air, heat and moisture flows will likely present a lower risk for significant moisture intrusion/accumulation over time.

In addition to these building science principles, the reviewer gauges risk based on how the owner/general contractor controls moisture during construction and what kind of proactive testing is completed during the construction and prior to ownership (*see sidebar, Are You Worth The Risk?*).

"This single policy is designed to fill the gaps in business insurance coverages..."

Research into the root causes of mold-related losses in the United States revealed that the relative risk of a building can vary by as much as 5,000 percent. The variability depends on the design of the building envelope, materials selected, local building codes and enforcement, the quality of the craftsmanship and the region in which the building is located.

Contrary to popular belief, climate is not a good predictor of mold risk. In the relative hazard ranking model developed to support the insurance REEL/HPR/Mold underwriting process, the desert states Nevada and Arizona made it to the top ten list of high hazard states, while Louisiana did not even make an honorable mention. It will be no surprise to most readers that Texas has the highest loss frequency rate in the United State. Wisconsin has the lowest relative mold loss rate, which is one-fiftieth the failure rate in Texas based on the relative frequency of insurance claims.

REEL/HPR/Mold Insurance

Integrating building science principles into a pre-funded HPR insurance product was the key to providing a coverage period long enough to get the contractor and developer past the statute of repose. The building science-based review provides the insurer, developer and general contractor insight into identifying problematic designs, monitoring the construction process and providing ongoing loss control services over the course of the policy term. The design, construction and ongoing loss control services are aimed at avoiding mold-related losses through the proper operation and maintenance of the building.

After three years of research and development, the REEL/HPR/Mold insurance product emerged from the product design team. According to our research, the REEL/HRP/Mold product is the only environmental insurance product designed to insure all the environmental hazards of new construction, including pre-existing site conditions. It also provides pre-funded building science-based loss control services.

The REEL/HPR/Mold policy provides liability insurance for bodily injury, property damage, clean-up and defense for claims arising out of the release of pollutants including mold and fungus at the insured location. The policy features no-fault, on-site clean-up coverage of regulated hazardous materials. This single policy is designed to fill the gaps in business insurance coverages for all of the principal parties associated with a new commercial construction project.

To qualify for the REEL/HPR/Mold insurance product the contractor and developer must have a water intrusion loss prevention protocol in place on the proposed project and the building must pass a building science-based loss review of the construction plans. ARMR.Net is able to provide a pricing indication for the REEL/HPR/Mold product to interested parties. To receive an estimate of the premiums, an application for the policy is available on line at www.armr.net/reel.html.

Mold losses measured in the tens of millions of dollars are fairly common, with some claims measured in the billions of dollars making it to the press. Therefore the REEL/HPR/Mold product is offered with limits up to 25 million dollars. Policy terms of up to ten years are available. m

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Websites to Watch

Models for Improving Your Online Space

by Megan Headley

By now, there's one web address that everyone in the mold industry should know—the EPA's mold resources website, www.epa.gov/iaq/molds, which provides many resources about and guidelines for remediation. Beyond that, however, the internet is a source for millions of pages of unorganized information on mold. So where do you start?

Right here, that's where: while we at **Moldmag** don't recommend the services of a particular company, we found the websites below to be easy to navigate and particularly informative—and a useful guide for industry members looking to improve their web space. We're also including a look at recent efforts made by several companies to design their homepage to reflect their users' changing needs.

If after reading this you find that your home page or another spectacular site has been overlooked, email mheadley@moldmag.com with further nominations. Your complete list of websites to watch will be posted on www.moldmag.com.

Company Websites

1. Mircoban — **www.microban.com**

Microban's site is bright, artistic and easy to navigate, the better to show off a wide array of products. By clicking on "products," the user is led to tiers of information on the variety of industries that include Mircoban antimicrobial protection in its products. Users should also try clicking on "all about microbes" for an entertaining and informative look at the biggest problem areas for mold.

2. G-P Gypsum — **www.stopfeedingmold.com**

This mold-focused website leads to a vast amount of information on the company's DensArmor products that is almost equaled by the information provided on the microbes themselves in a section on Mold Best Practices.

3. Icynene — **www.icynene.com**

Check out resources on IAQ and building science before following a search of the term "mold" to additional information, from case studies to prevention tips. Sections geared specifically to builders, architects, remediators or homeowners should help users find the facts they need.

4. Steril-Aire — **www.steril-aire-usa.com**

The site supports the company's product facts by providing thorough background information on ultraviolet light and how it can be useful in mold remediation. Between the lengthy FAQs list and numerous case studies, users are bound to learn something they didn't know before.

5. Water Out Flashing — **www.wateroutflashing.com**

As any good teacher knows, no two students learn in exactly the same way. With this in mind, this site provides detailed written instructions on flashing installation corresponding to step-by-step pictures, with the promise of a video of the entire process coming soon. A FAQ section finishes the instruction job.

Remediators' Websites

1. Next Generation Technology Group **www.nextgeneration-tech.com**

This site presents an overwhelming amount of information in a very organized manner. Broken down by industry as well as by concern (health, insurance, etc.), users are bound to find the information they didn't know they needed. Click on "mold key terms" and "common places for mold" for a quick education.

2. Air Advantage **www.air-advantage.com**

One section of this site is designed to help home and building owners to "get educated" and is certainly worth a look. Plenty of sites offer information about what mold is and how it grows, but not as many guide individuals with a mold problem to the next step.

3. MARCOR Remediation Inc. **www.marcor.com**

Check out this engaging site's new section for industrial hygienists. While much of the site's mold information is given through case studies and creative promotional items, many of those, such as the checklist of mold remediator qualifications, could offer insight.

4. MicrOscope **www.moldbegone.net**

This site offers a page that walks users through the company's remediation process, from what point workers discuss remediation options with building occupants to the types of bags used to dispose of porous material. This step-by-step approach could be reassuring to potential clients.

5. IAQM LLC **www.iaqm.com**

A flashy website can be fun, but it's finding the information you need that counts. This site offers a little of both, with a complete breakdown of all the services the company offers easily navigable from a tool bar on the left side of the page. Compare differences between the sections on remediation and school remediation.

Association/Service Organization Websites

1. Building Science Corp. **www.buildingscience.com**

Referenced in seminars at the AIA Convention and AIHce, among others, as a top resource on mold prevention, this site offers a wealth of information. Informative and accessible articles are available on every part of a home, from vents to windows and from roofs to crawl spaces.

2. American Industrial Hygiene Association (AIHA) **www.aiha.org**

Industrial hygienists are already familiar with this site, but it's time other individuals interested in learning more about the remediation process checked out its resources, including fact sheets, articles, outside links and education opportunities. In addition, the association has noted that it is in the process of redesigning its website to offer a more efficient navigation structure and effective search tool.

3. The Engineered Wood Association **www.buildabetterhome.org**

This link will take users straight to easy-to-understand and thorough construction details for moisture-resistant homes. The association promotes the use of wood products by offering educational tools and free downloads on moisture control, including its *Build a Better Homes Guide: Mold and Mildew* and moisture-free construction details that can be downloaded as a JPG or as a CAD.

4. Environmental Education Foundation **www.enviro-ed.org**

Web-based training on mold awareness and a number of educational webcasts are some of the ways this organization boosts its web presence. Click on "upcoming events" to learn about these options, and then compare it to the section about on-site training.

5. American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc. (ASHRAE) **www.ashrae.org**

Although this site occasionally requires an in–depth search to find information about mold, a little research often turns out to be worthwhile. Publications and guidelines on mold and even a recent mold webcast are some of the gems included on this site.

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Keeping an Eye Open

Look Out for These Websites' Continuing Improvements

The only thing better than an easy-to-navigate website with strong content is a website that shows a company's constant efforts to get even better. For their additions and upgrades—and newly posted information on mold—these websites certainly made our list of websites to watch.

Sto Guard Offers AIA Waterproofing Course Online

Atlanta-based Sto Corp. is now offering an online course entitled *Fluid Applied Waterproof/Air Barriers for Moisture Control and Mold Prevention in Wall Construction.*

The course presents information on fluid-applied waterproof/air barriers, with topics including components, advantages, design considerations, basic theory of air barriers and performance comparisons to traditional paper moisture barriers and fabric building wraps. (The one-hour course also provides one learning unit for AIA members, although AIA membership is not required to take the course as it may fulfill other continuing education needs.)

The course is available from the company's website.

www.stocorp.com/allweb.nsf/stoaia or call 800/221-2397.

EPDM Posts Roof Restoration Guidelines on Web

The EPDM Roofing Association (ERA) has posted newly developed restoration specifications and details on its website, www.epdmroofs.org. The information was developed a collaborative effort between Firestone Building Products and Carlisle SynTec, suppliers of EPDM membranes. It includes downloadable outline specifications and numerous detail drawings.

The information can be located under the homepage's Technical Bulletins & Research tab.

www.epdmroofs.org or call 703/684-5020.

Falcon Foam Aims for Enhanced and Expanded Site

Falcon Foam, a part of Atlas Roofing Corp. based in Atlanta, has enhanced and expanded its website with additional product information, including a mold bulletin explaining that EPS (polystyrene) has passed the ASTM C 1338 *Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.*

Other website features available from the EPS manufacturer include a downloadable credit application, a fact sheet on mold and EPS and a digital slide presentation entitled *Expanded Polystyrene Building Insulation and Construction.* The site's remaining pages are filled with technical data about all the uses of Falcon Foam EPS.

www.FalconFoam.com or call 800/917-9138.

Top 10 Websites You Should Already Know

1.	Environmental Protection Agency	www.epa.gov/iaq/molds
2.	Building Science Corp.	www.buildingscience.com
3.	Indoor Air Quality Association	www.iaqa.org
4.	Occupational Safety and Health Administration	www.osha.gov/SLTC/molds
5.	Center for Disease Control	www.cdc.gov/nceh/airpollution/mold
6.	Institute of Inspection, Cleaning and Restoration Certification	www.iicrc.org
7.	New York City Remediation Guidelines	www.nyc.gov/html/doh/html/epi/moldrpt1.shtml
8.	American Industrial Hygiene Association	www.aiha.org
9.	Environmental Education Foundation	www.enviro-ed.org
10.	American Society of Heating, Refrigerating and Air-Conditioning Engineers	www.ashrae.org

Top Consumer Websites to Recommend

1.	National Center for Housing and the Environment (NCHE)	www.stopmold.org
2.	National Association of Home Builders (NAHB) Resource Center	www.moldtips.com
3.	North Dakota State University Extension Service	www.homemoisture.org
4.	Minnesota Department of Health	www.health.state.mn.us/divs/eh/indoorair/mold/index.html
5.	Canada Mortgage and Housing Corp. (CMHC)	www.cmhc-schl.gc.ca

Redesigned USG Website Offers Customer-Focused Upgrades

Following extensive research, planning and testing, USG Corp., headquartered in Chicago, has launched its new and enhanced customer-focused website, www.usg.com. The site has been designed to enable users to access quickly and easily detailed information about the company and products such as its mold- and moisture-resistant panels.

The website also now features an improved site search function and enhanced online tools to help users design with USG products and calculate the amounts of material needed for a specific project. In addition, the new product selector enables visitors to seek information by performance-related system, product type, brand name or application.

➡ **www.usg.com or call 800/874-4968.**

Southern Pine Council Promotes "Raised Floor Living"

The Southern Pine Council (SPC) announced that it is sponsoring a website teaching home builders and designers about raised floor foundation systems, RaisedFloorLiving.com. The site was designed to provide the latest information on the raised floor system advantages and construction methods, and is a follow-up to the council's 48-page *Raised Floor Systems: Design and Construction Guide.* Subject matter ranges from key elements of a raised floor foundation to its benefits in moisture control.

The website is designed for easy navigation and up-to-date content, and includes construction photographs and detailed illustrations throughout. Topics in the construction process section include crawl space design and construction, footings and foundations, floor framing and connections and decks and porches. Before building a raised floor structure, each step can be visualized by reviewing construction details and span details.

➡ **www.RaisedFloorLiving.com.**

MICHIGAN: Mold Exposure Joins Highest Personal Injury Claims

Mold exposure has jumped to the forefront of significant personal injury claims in Michigan with a $925,000 award by the Wayne County Circuit Court to an apartment resident there. The verdict, the highest ever in Michigan for personal injury damages resulting from mold exposure, could ultimately force a new standard of liability on property owners and landlords, according to a news release from Sommers Schwartz, the law firm that represented the plaintiff.

The apartment resident, Esmeralda Mahaffy, developed permanent, severe asthma from exposure to high levels of mold after her apartment was negligently repaired following a flood from a toilet in the apartment above her unit in 2001. The incident occurred after years of ignored complaints of water leakage and persistent mold on the walls and ceilings.

The jury found that the apartment management of Maple Creek apartments in Woodhaven, Mich., failed to follow the EPA's guidelines in cleaning up the damp, moldy conditions. The case may set a liability precedent for property managers and landlords who negligently maintain their commercial residential properties and fail to follow industry guidelines for the cleanup of water intrusion and mold damage.

"This is the largest single personal injury Michigan verdict since mold claims began being pursued in Michigan in 1999, a significant legal development because many defendants and their lawyers do not take injuries from mold seriously," said Jennifer Grieco of Sommers Schwartz, Mahaffy's attorney. "The jury, however, took the injury seriously, despite the defendant's arguments that mold is the same as mildew and found 'everywhere,' and appreciated the effect the severe asthma condition Ms. Mahaffy developed would have on her life."

Mahaffy feels that the jury was speaking through its verdict to tell the manager of the apartment complex that it should have done more than send in a handyman to rip out drywall when faced with signs of visible mold, in addition to providing a safe and habitable living space for the tenant while work was done.

"The verdict supports the validity of mold litigation actions, certainly as seen through the eyes of increasingly conservative jurors," Grieco said.

NEW JERSEY: Homeowners Claim Victory in Mold Suit

Seven residents of the Princeton Landing community in Plainsboro, N.J., found a winning verdict in the lawsuit against the homeowners' association that sued to force them to move out of their condos while the units were remediated for mold, according to a June article in the *Princeton Packet*.

Leaks were discovered when apartments in the 600-unit community were converted into condominiums in 1987, the article reported. Problems with the stucco created leaks that damaged the stucco, windows and sheathing and led to mold growth. In 2002, the homeowner's association reached a $2 million settlement with the development's previous management company to pay for mold remediation.

Engineers estimated the remediation to cost approximately $3.35 million, with the expectation that the units would be empty. However, seven residents have refused to leave their homes during the time allotted for the clean up for a variety of reasons, which officials with the homeowner's association argued would likely increase the price of remediation to those units.

The article stated that one tenant cited complaints from other residents—who returned to the condos to find blocked toilets, non-functioning electrical outlets and damaged phone lines—as reason not to move out even temporarily.

NEW YORK: Landlord Files to Have Bianca Jagger Evicted

Katz Park Avenue Corp. filed a follow-up lawsuit in April seeking to evict Bianca Jagger from her two-bedroom Park Avenue apartment. According to an article from CourtTV, the ex-wife of Rolling Stones frontman Mick Jagger stopped paying her $4,600 monthly rent in July 2003, claiming that water dam-

age in her apartment had led to harmful levels of mold.

Jagger, a human rights activist, has also been active in speaking out on the dangers of mold, joining lobbyists urging Congress to take action against mold.

According to the article, Jagger discovered water damage to her apartment in 2001, and home inspectors from the city noted the growth of mold in the apartment in October 2003. Inspectors then gave Katz five days in which to have the problem corrected.

When Katz sued her in 2003 for unpaid rent, Jagger responded with a $20 million personal injury suit, citing bleary vision and other flu-like symptoms that she alleged had been caused by the mold.

In its newest filing, Katz says Jagger should be evicted because her lease officially ended in February 2004. In addition, Katz claims contractors recently finished repairing the apartment, according to the article.

The article also reported that because the apartment is rent-stabilized, Jagger must claim it as her permanent residence. Katz has argued, however, that Jagger's actual residence is London, and despite her claims that her Park Avenue apartment is uninhabitable, her assistant has been seen there.

FLORIDA: Woman Brings Mold Suit Against Allstate

A Cape Coral, Fla., resident has filed what could become a class-action lawsuit against Northbrook, Ill.-based Allstate, accusing the insurance company of failing to pay for mold damage after Hurricane Charley and other storms, according to an article from *The News-Press*.

Luann Guy has accused the insurance company of not informing her about mold coverage or sending an inspector out to look for mold growth. She's suing the company for breach of contract, claiming she hasn't received any of the $10,000 policy limit for mold, according to the article.

According to the lawsuit, Guy's home sustained water intrusion that resulted in mold and dry-rot damage after Charley hit.

"Specifically, her residence sustained damage as a result of water intrusion when portions of the roof were blown away, as well as water entering the residence from other sources," the lawsuit states. "Soon thereafter, her residence became infested with mold."

Guy is asking for compensatory damages up to the amount of the mold policy limit of $10,000, attorneys' fees and certain court costs, according to the article.

NORTH DAKOTA: State Supreme Court Rejects University's Insurance Claim

North Dakota's Supreme Court has rejected a $2.9 million insurance claim by North Dakota State University (NDSU), ruling that the school's two insurers, the Fire and Tornado Fund and the Hartford Steam Boiler Inspection and Insurance Co., may not be forced to pay for water damage from a heavy rainstorm nearly five years ago, according to an article from *Newsday*. In a unanimous decision, the court ruled that damage to NDSU's heating plant, steam tunnel and computer center was caused by surface water, which is excluded in the school's insurance coverage.

According to the article, the water problems began after a June 2000 storm poured more than 7 inches of rain on Fargo, N.D., in about seven hours and left more than 8 feet of water on the school's Fargodome arena floor. Water accumulated in the dome and a 4,295-foot-long steam tunnel that connected it to other campus buildings. After several hours, the water moved through the tunnel into the university's heating plant and computer center.

NDSU argued the water flow did not meet the legal definitions of flood water or surface water, and the insurance companies should be required to pay the claim.

continued on page 46

According to the North Dakota Supreme Court, the water damage sustained by NDSU's athletic facility and convention hall won't be cleaned up by an insurance claim.

continued

"Surface water does not lose its character as surface water simply by being artificially channeled underground," Justice Dale Sandstrom wrote in the court's opinion. "The undisputed facts establish that surface water, an excluded peril under both insurance policies, was the only cause of water damage to the steam tunnel, the heating plant, and the [computer center]."

NDSU also filed a separate lawsuit against the city of Fargo, which owns the dome. The trial began in late April.

SOUTH DAKOTA: State Supreme Court Finds City can be Sued for Negligence

City governments are not immune from lawsuits for damages caused by leaking pipes between water shut-off valves on private property and large municipal water mains, the state South Dakota Supreme Court ruled in March, according to an article in *The American News*.

The unanimous decision allows Rapid City homeowners David and Cindi Elkjer to continue their lawsuit against the city. The couple sued the city after their basement was flooded by a break in a water service line, damaging the carpet, walls, furniture and other belongings. Although Rapid City has an ordinance in place that says it is not responsible for service lines or any damage if those lines break, the couple argued that because the city had known the lines it had installed were prone to leaks, it should be responsible for its negligence, according to the article.

In addition to metal pipes, the city allowed service lines in the area to contain polybutylene plastic. The inexpensive piping was later discovered to leak, and its use in the city was outlawed. In 1991, Rapid City began a policy of replacing the leaking poly-B service lines. The Elkjers' alleged that the city knew about the problems with poly-B for a decade and was negligent in not replacing the inferior service lines until they broke.

The lawsuit was filed in 2004, but Circuit Judge Merton Tice dismissed the case on the grounds that the Elkjers had no legal claim that would allow them to recover damages, according to the article. Overruling the lower court judge, the state Supreme Court said nothing in South Dakota law gives cities the power to avoid responsibility for leaking water service lines.

"It does not necessarily follow that because homeowners may be responsible for installation and maintenance costs that a city cannot be sued ... for its own negligence related to those service pipes," wrote Justice John K. Konenkamp. "We conclude that both the city and its homeowners share responsibility for service lines."

The article added that although the high court ruled that the Elkjers can sue the city for water damage to their property, the couple still must prove at trial that the city was negligent.

OREGON: Family Wins a First in Northwest with Jury Verdict on Mold

An Oregon family who claimed that mold in their newly built house made them sick has won a half-million-dollar judgment against Beaverton, Ore.-based Adair Homes Inc.

The decision is one of the first jury verdicts on mold in the Northwest, according to an article in *The Oregonian*.

The homeowners in the case, Renee and Paul Haynes, hired Adair Homes in 2001. Framing on the new home occurred in December 2001, the state's wettest month of the year. According to the article, the Haynes became ill upon moving into the new home in March 2002. The lawsuit, filed in November 2002, said the couple and their children suffered from diarrhea, nausea, vomiting and respiratory problems. The couple's two sons were later diagnosed with sensory integration disorder, making them extremely sensitive to touch, a disorder that the homeowners attributed to mold.

The jury ultimately decided that the construction company's methods allowed mold to grow inside the Hayneses' home and that it led to their medical problems. The jury awarded the family $498,418 for breach of contract and personal injury.

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SILLS AND FLASHING

Grace Construction Expands its Family of Vycor® Flashing Products

Wall systems are most susceptible to water infiltration at the lower corners of windows. To prevent costly water damage, Grace Construction Products of Cambridge, Mass., has introduced Grace VYCORner™, the latest addition to the company's family of flashing products. VYCORner is a prefabricated plastic corner designed to prevent leaks at critical penetration areas by creating a waterproof joint without the need for intricate detailing.

According to company information, the product should be used in conjunction with the company's Vycor Plus self-adhered flashing membrane to provide long-lasting waterproofing protection.

www.graceconstruction.com or call 617/876-1400.

Quickflash Panels Protect Building Penetrations

While the installation of flashing around doors and windows is common practice, other areas of possible penetration in the home—such as around electrical boxes or plumbing pipes—are generally sealed only with caulk. To create a more secure, waterproof seal, Quickflash Weatherproofing Products of Las Vegas is offering Quickflash panels for electrical and plumbing penetrations.

The panels eliminate the need for caulking and/or sheet metal flashing around electrical boxes and PVC, copper or brass pipes, preventing electrolysis problems with dissimilar materials. Designed for exterior vertical wall installation only, they can be installed in both residential and commercial projects. They are also

WINDOWS AND DOORS

Edgetech Offers Health Smart Windows

Edgetech IG Inc., headquartered in Cambridge, Ohio, is offering its Health Smart Windows® with Super Spacer®, an insulating foam spacer designed to reduce condensation and allow for comfortable household humidity levels.

Super Spacer is a dual seal insulating glass system. Because it includes no metal, the 100-percent polymer foam spacer resists condensation, reduces energy costs, provides long-life durability and adds both comfort and value to windows. Information provided by the company also stated that this material conducts heat and cold at a rate 950 times lower than aluminum and 85 times less than stainless steel. In addition, the all-foam formula offsets the effects of temperature changes, barometric pressure, wind load and glazing pressure. The end result is less seal failure and fewer stress cracks, according to the company.

www.superspacer.com or call 800/233-4383.

Simpson® Door Co. Offers its Performance Series

McCleary, Wash.-based Simpson Door Co. is offering its Performance Series doors, which feature the beauty of genuine wood combined with proprietary moisture-resistant technology and an exclusive construction process that withstands even the toughest exposures.

To prevent damage from exposure to tough weather conditions such as rain, snow, direct sunlight

designed for multiple finishes such as stucco, wood siding and veneers.

The flashing panel provides firm backing that prevents stucco gunite blow-out around protrusions. The plumbing panels are made from a combination of high- and low-density polyethylene copolymer bapolene and hercuprene J-Von. Electrical panels are made from thermal plastic rubber (TPR).

According to the company, the panels are safe and easy to install and save time since no 24-hour caulk curing time is required.

www.quickflashproducts.com
or call 702/614-6100.

GYPSUM BOARD

Hi-Impact® XP® Wallboard Also Resists Impact of Mold

Hi-Impact XP wallboard panels from National Gypsum Co. of Charlotte, N.C., are designed for use in wall assemblies in areas where surface durability, impact and penetration resistance and mold and moisture resistance are major concerns.

The wallboard consists of a fire-resistant type-X gypsum core encased in heavy abrasion-, mold- and mildew-resistant, 100-percent recycled purple paper on the face side and heavy mold- and mildew-resistant liner paper on the back side. A fiberglass mesh is embedded in the board, close to the back side of the panel to provide additional impact and penetration resistance.

Tapered edges allow the panels' joints to be reinforced with ProForm® joint tape and concealed with the company's ready-mix joint compounds.

According to company information, the panels resist the growth of mold per ASTM D 3273 and can be used in areas subject to intermittent moisture, including tub areas. It can also be used on the interior side of exterior walls in hot, humid climates such as the Southern Atlantic and Gulf Coast areas.

www.nationalgypsum.com
or call 704/365-7300.

and standing water, the company's Performance Series doors combine UltraBlock technology and an exclusive Weather Seal process. Because these features virtually eliminate rotting, splitting and swelling of bottom rail and lower stile components, the doors are suitable for almost any patio door situation, including areas with poor overhang protection and wet and humid climates.

The exterior French door also features the company's patented ViewSaver® technology, a construction process that combines a sleek 1 3/8-inch profile bar design with 3/4-inch thick insulating glass, resulting in an energy efficient door with maximum viewing area. The bar is kerfed at all wood-to-wood joints and, in combination with a sealing compound, provides a barrier against water infiltration.

www.simpsondoor.com
or call 800/952-4057.

Merrill Unveils New Door

Merrill Millwork Inc. of Merrill, Wis., has developed a new in-swing patio door as part of its Park-Vue line of patio doors.

This in-swing patio door features a new, pultruded fiberglass sill, incorporating the company's patented weep door end plug system. Using the weep door end plug system guarantees that any water that may find its way inside, e.g. when opening the door, will be collected inside the sill, not on the floor, and wept out through the weep door end plug system.

The jambs, still the same profile as before, now sit on steps of the sill end plug, not directly on the floor, which will improve the durability of this door, according to company officials. The header section is now the same profile as the jambs.

Both the 4 9/16-inch and the 6 9/16-inch sill/frames use the same size screen. The overall dimensions of these new in-swing patio doors remain the same as before.

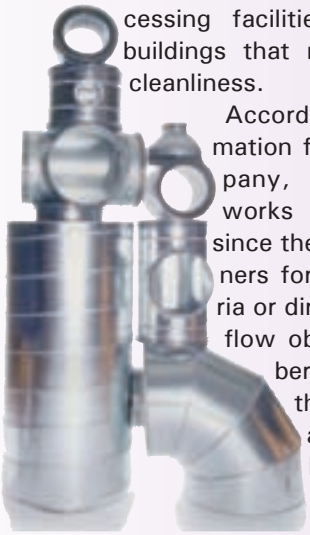
www.park-vue.com
or call 715/536-8112.

continued

DUCT AND HVAC COMPONENTS

Lindab Round Ductwork Treated with AgION

SPIROsafe® from Lindab, based in Stamford, Conn., is a comprehensive line of round duct system products treated with AgION antimicrobial compound. The antimicrobial duct system is intended for schools, hospitals, pharmaceutical facilities, food processing facilities and other buildings that require added cleanliness.



According to information from the company, round ductworks stays cleaner since there are no corners for mold, bacteria or dirt to collect in and is also quieter because less airflow obstruction means less turbulence and less reverberation. Made of high-grade solid steel sheet metal, the duct system is impermeable to insects, rodents and fungi. It features double-lipped sealing gaskets that prevent leakage, outperforming the tightest standard SMACNA and ASHRAE address, leakage class three. It also keeps air conditioning and ventilation costs down. The self-sealing ducts require no duct sealant or tape, so are suitable for exposed installations.

www.lindabusa.com or call 800/797-7476.

CertainTeed Introduces ToughGard2

CertainTeed Corp., headquartered in Valley Forge, Pa., has introduced its ToughGard2 textile duct liner. Designed for use in most types of comfort heating and cooling duct systems, the fiberglass duct liner provides high acoustical and thermal performance, easy handling and resistance to microbial growth.

The liner is composed primarily of long, textile-type glass fibers firmly bonded together with a thermosetting resin and overlaid with the tough and durable ToughGard fire-resistant, black air stream surface. The air stream surface contains an EPA-registered antimicrobial agent, Enhanced Surface, intended to reduce the potential of microbial growth that may affect the product. The liner also offers resistance to tears, punctures and surface wear during installation and cleaning. In addition, the product is certified by the Greenguard Environmental Institute for low VOC emissions.

www.certainteed.com or call 800/233-8990.

DensGlass Silver Provides Mold Resistance with Gypsum Board

G-P Gypsum Corp., a Georgia-Pacific Co., is offering its DensGlass Silver™ paperless gypsum wall sheathing for single- and multi-family residential applications. Unlike traditional paper-faced gypsum sheathings, DensGlass Silver has glass mats on both the face and back of a moisture-resistant core. The product was tested, as manufactured, for mold resistance per ASTM D 3273.

DensGlass Silver can be used in place of oriented strand board (OSB), foam sheathing, cement board, ⅛-inch foil-faced sheathing or ½-inch fiberboard sheathing in residential wall construction when applied in compliance to model building codes. Half-inch DensGlass Silver is a structural wall sheathing when using fastener and fastener spacing as listed in IRC Section R 602.10.3, method 5.

www.gpgypsum.com or call 800/225-6119.

MASONRY

BlockNet® Protects Concrete Walls from Water Infiltration

The BlockNet® system by Mortar Net USA Ltd. of Gary, Ind., protects single wythe concrete block walls from damage caused by water infiltration. By providing an open path by which water can migrate to the exterior of the building while simultaneously preventing mortar droppings from blocking that path, the BlockNet system allows the free migration of moisture from the interior of the block cells to the building exterior.

The product forms a continuous drainage system around the entire perimeter of a concrete block building. When water enters the wall it flows down the inside of the face of the block, through a vertical

mesh piece, onto a horizontal stainless steel drainage piece and out of the wall through integrated drainage tabs. The system is composed of 3 ⅜-inch deep 28-gauge stainless steel drainage strips with integrated drip edge, horizontal and vertical mesh elements and rear water dam. The mesh will not oxidize, rot, promote mold or fungus growth or react with other common building materials, according to company information.

The product has been tested according to ASTM E 514, *Test Method for Water Penetration and Leakage Through Masonry*.

www.mortarnet.com or call 800/664-6638.

INSULATION

XPSA 'Covers' Building Sustainability at Ecobuild America Exhibit

The Extruded Polystyrene Foam Association (XPSA), a trade association representing manufacturers of extruded polystyrene foam (XPS) insulation products, stepped up its awareness campaign at the Ecobuild America Conference on June 20-23, 2005. The association's new campaign slogan, "XPS Covers Everything," was designed to inform users that one product can perform across the board in three important green building categories. According to an association news release, XPS sheathing products are weather- and moisture-resistant, durable and have stable, long-term insulating power.

During the three-day conference, the XPSA booth showcased foam insulating sheathing benefits, thermal bridging illustrations and informative materials on topics ranging from insulated sheathing life cycle analyses to environmental benefits related to Ecobuild's mission.

www.xpsa.com or call 800/978-9772.

MOISTURE SENSORS

OmniSense Monitors Facilities for Moisture

OmniSense LLC, located on Channel Islands Harbor in Oxnard, Calif., a producer of wireless sensor networks for commercial and residential applications, is offering facility monitoring systems (FMS) to detect water intrusion.

FMS supports multiple sensor types for real-time 7x24 monitoring of parameters such as wood moisture, humidity, temperature, AC power and DC voltage. The wireless sensors can be embedded in areas where water penetration is most likely and communicates through a central gateway device.

The sensors operate from a single battery that lasts anywhere from 15 to 45 years. Sensor readings are sent from the FMS Gateway over the Internet via a standard Ethernet or dial-up connection to the OmniSense host application and stored in a central database. The host application has fault tolerant features to ensure data integrity including server load balancing, daily backups and UPS with generator backup.

System alarm thresholds can be custom configured and when an alarm event occurs, system subscribers and/or their maintenance company can be alerted by email, pager, text message or phone. In addition, a subscriber's sensor data is easily accessible using a web browser interface for real-time diagnostics and all subscriber data is permanently archived.

www.omnisense.com or call 805/340-9625.

WATERPROOFING

AVM Offers Below-Grade Waterproofing

AVM Waterproofing of Canoga Park, Calif., is offering its AVM System 500 Aussie Membrane, a fluid-applied product for below-grade waterproofing.

The membrane is a vapor-proof, brown rubber/bitumen liquid emulsion, which dries to a tough, black seamless flexible waterproof membrane. The membrane exhibits excellent elongation and recovery properties, according to company information.

The product is for use in walls to waterproof below-grade concrete and block walls, basements and wet rooms; to provide floors with in-between slab waterproofing; to waterproof planters and other landscaping features; for waterproofing under concrete toppings on balconies, walkways and other common areas; and under terrazzo and ceramic tile applications when using a thick-set or mud-bed over the membrane. It can be applied by roller or brush or sprayed on, and is typically fully cured after 24 hours.

www.avmindustries.com or call 888/414-1041.

BUILDING MATERIALS RESEARCH

GREENGUARD Releases First Report on Microbial Resistance

The GREENGUARD Environmental Institute (GEI), a nonprofit certification program based in Atlanta, and Air Quality Sciences Inc. (AQS), a Marietta, Ga.-based air quality testing and consulting firm for the commercial market, have released the first report on the microbial resistance of indoor materials. The report outlines the test method and initial validation obtained on interior materials.

In the test, samples and control coupons are inoculated with measured amounts of spores of Penicillium brevicompactum, which commonly occurs in buildings with water or moisture damage. One set of test and control coupons are harvested within an hour to serve as a baseline. The other set of samples and controls are then incubated under controlled conditions at 95 percent relative humidity for three weeks. The amount of mold recovered from both results is then quantified by plating spores washed from the coupons and counting the colonies after incubation in order to determine the material's degree of resistance to mold growth.

The objective of the one-year pilot study was to gain a better understanding of the microbial-resistant properties of different materials under adverse conditions. Additionally, results from the study are intended to lead to the development of a standard for comparing building materials. A credible rating system will help building professionals find appropriate products corresponding to the specific environmental conditions of their building projects, according to a news release from AQS.

Based on the Environmental Protection Agency's (EPA) research guide ASTM D 6329-98, the GEI pilot program looks at the performance of materials in their manufactured state in terms of their ability to resist microbial colonization. According to AQS, one of the challenges of this program is developing a test and ranking that is applicable to a wide range of materials. AQS performs the laboratory testing and will oversee final completion of the test protocol and quality control elements of the program.

The first report can be viewed online by visiting www.greenguard.org/uploads/MicroResistPaper.pdf.

➡ www.greenguard.com or call 800/427-9681.

HVAC RESEARCH

Study Compares HVAC Age to IEQ Complaints

At the American Industrial Hygiene Association (AIHA) Convention and Expo in May, Paul Haas of Morse Zehnter Associates of West Palm Beach, Fla., summarized a study in which researchers looked at 500 buildings to compare occupants' complaints of humidity, temperature, moisture intrusion and mold to the age and condition of the buildings' HVAC equipment. Guidelines from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) state that after 20 years the HVAC equipment should be replaced, and this study looked at whether mold or IAQ complaints worsened with the age of the equipment.

Haas explained that information was gathered through datalogging of complaint areas followed by maintenance and mechanical assessments. An engineering evaluation from as-built conditions, mechanical takeoff information, supply configuration and dehumidification enhancement was then compared to the complaints.

In his presentation, Haas said the study showed that moisture intrusion and mold infestation complaints were often linked to building envelope conditions and less likely correlated to HVAC equipment's ability to treat high humidity. Complaints made of

Total Occupant Complaints vs. HVAC Age

(From a total of 823 complaints)

Complaint	>20yr.	16-20yr.	11-15yr.	5-10yr.	0-4yr.
Temperature	26%	20%	20%	22%	25%
Relative Humidity	6%	13%	9%	9%	4%
Indoor Environmental Quality	12%	8%	17%	17%	4%

musty odors or visible mold in the absence of building envelope problems were often the only way occupants noted high humidity caused by HVAC equipment.

In addition, the study showed that complaints about temperature fluctuations and humidity often had a negative correlation with the datalogging values. Occupants were generally less capable of describing a high temperature coupled with low relative humidity as more comfortable than low temperatures coupled with excess relative humidity during occupied hours, even when datalogging values showed this condition.

As necessary, the researchers suggested corrective action based on a condition assessment of the functional components of the equipment, redesign considerations or equipment replacement in accordance with ASHRAE guidelines.

www.mzaconsulting.com or call 518/283-7671.

ASHRAE Funds Student's Ventilation Research

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has approved 12 students to receive a total of $100,000 for their research on indoor air quality. The association's grants-in-aid program is designed to encourage students to continue their education in preparation for service in the HVAC&R industry. One of the selected projects was *A Ventilated Window for Indoor Air Quality Improvement in Residential Buildings* by Jennifer Gosselin of Purdue University.

Gosselin noted that in recent years, concepts such as ventilated building facades that can improve indoor air quality while conserving energy have been used in commercial buildings. However, the technology has not been used as frequently in residential buildings. She will research a ventilated window system that consists of a triple glazing system with operable louvers. Forced or natural airflow would be used to temper outdoor air with exhausted indoor air, thereby reducing heating and cooling demands.

"The outdoor air through the window system will improve indoor air quality, but it would not consume energy because the window system works like a heat exchanger," Gosselin said.

According to an ASHRAE news release, results from the projects may be incorporated in the ASHRAE Handbook.

HEALTH

Study Finds Elevated Respiratory Problems in Employees in Water-Damaged Building

A study published in the April 2005 issue of *Environmental Health Perspectives* titled "Respiratory Morbidity in Office Workers in a Water-Damaged Building" reported a relationship between occupancy of a water-damaged building and the onset and exacerbation of respiratory conditions.

In September 2001, members of the National Institute for Occupational Safety and Health's (NIOSH) Center for Disease Control (CDC) and the University of Connecticut Health Center sent a questionnaire to the 1,327 employees working in a building that had experienced severe leaks since 1990. The study collected responses from 67 percent of the workers on general symptoms, respiratory illnesses and the occurrence of asthma and those symptoms' relationship to the work environment.

The study found that "physician-diagnosed asthma and respiratory symptoms occurred in excess among ... study participants."

The majority of participants with respiratory symptoms—60 to 70 percent—reported a work-related pattern to their symptoms. In the nine-month interval between the survey and its follow-up, more than half of the comparison group chosen because they had no respiratory symptoms had become symptomatic. The high amount of sicknesses was reflected in sick leave that the study found was attributable to building occupancy.

The study also reported a comparison between the symptoms occurrence within the water-damaged building and their occurrence in the general U.S. population.

- Nasal and eye symptoms were prevalent in the building occupants, but were less elevated compared to U.S. adults.
- The building occupants reported wheeze, nasal or eye symptoms that improved when they were away from work at 3.4 times the rate of the U.S. population.
- Sixty to 70 percent of participants with wheeze, chest tightness, shortness of breath or cough in the four weeks prior to the survey reported an improvement in symptoms when away from the building. Prevalence ratios for work-related lower respiratory symptoms compared to overall U.S. office workers were elevated.
- The prevalence of adult-onset asthma was 12 percent. Two-thirds of the adult-onset asthma occurred after occupancy of the building.

To view the study online, visit ehp.niehs.nih.gov/members/2005/7559/7559.html.

NIEHS Releases Training Guidance for Workers Exposed to Mold

The National Institute of Environmental Health Services' (NIEHS) worker education and training program has released its *Guidelines for the Protection and Training of Workers Engaged in Maintenance and Remediation Associated with Mold*.

The training guidelines from NIEHS were formulated from the input of a diverse group of industry experts.

The guidelines for remediation workers were created through two workshops, each one attended by more than 60 technical experts representing governmental agencies, industrial hygiene firms, abatement contractors, labor unions, universities and trade associations. NIEHS managed the workshops in cosponsorship with the Society for Occupational and Environmental Health (SOEH), the Association of Occupational and Environmental Clinics (AOEC), the Urban Public Health Program of Hunter College of the City University of New York, the New York City Department of Health and Mental Hygiene and the School of Public Health of the University of Medicine and Dentistry of New Jersey.

The National Clearinghouse for Worker Safety and Health Training (NCWSHT) edited the guidelines. A news release from NCWSHT stated that need for these guidelines has grown out of an increase in the population of mold-exposed workers and the absence of federal regulations or generally accepted professional guidance on appropriate training.

The publication is presented as minimum-training criteria and is intended to serve as initial guidance to governmental agencies, trade organizations, labor unions and professional associations in the future development of mold worker protection training programs and standards.

Among its basic principles, the guidelines state that (based on existing data) it is not feasible to set an airborne exposure limit as is done with other airborne contaminants and that protection cannot be managed by measurement of a worker's exposure to mold. Instead, the amount of personal protection required should be based on how much mold the worker would likely be exposed to for a specific task—performing an invasive investigation, for instance, might require greater protection than performing air sampling. The publication also emphasizes the importance of training courses and the use of safety equipment such as respirators recommended by OSHA, EPA and the American Industrial Hygiene Association. In addition, the new guidance supports a number of existing guidelines and their recommendations.

To view the complete guidelines, visit www.wetp.org/wetp/index.cfm ?Current=327.

Florida School District Seeks Guidelines for IAQ Tests

The St. Lucie County, Fla., school district has asked a private indoor air quality consultant to create a guideline to determine whether and when testing should be done in schools in order to find mold, according to a June article in The *Palm Beach Post*.

Since many Florida schools are still dealing with the results of water damage from last year's hurricanes, a number of parents have asked the district to conduct air-quality tests in schools for mold. The district has refused repeatedly, citing the lack of state and federal guidelines for safe levels of mold exposure, according to the article.

The district has said its reservations about testing are grounded in the EPA guideline on mold. However, since allowing testing at Mariposa Elementary School because of an increase in health complaints, school district officials are hoping to create a specific set of criteria for testing at other schools.

"The situation at Mariposa led us to where there were more questions than there were answers," district facilities director Ken East was quoted in the article. "It was a situation that we could not readily solve through the standard practices we were going through."

Tests won't be done at other schools for now, he added, although that could change with the consultant's recommendations.

Through testing and inspection, the consultant hired by the district found various air-quality problems inside Mariposa Elementary School.

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Since April, parents and teachers there have reported symptoms such as nosebleeds, scratchy eyes and throats and more serious respiratory ailments. Many of the health problems are believed to be related to the building's poor ventilation, according to district consultant Eric Althouse. He reported that no significant mold growth has been found inside the school so far.

As part of his recommendations, Althouse, a former air-quality specialist with the state Department of Education, has proposed testing to compare mold-spore concentrations of indoor versus outdoor environments.

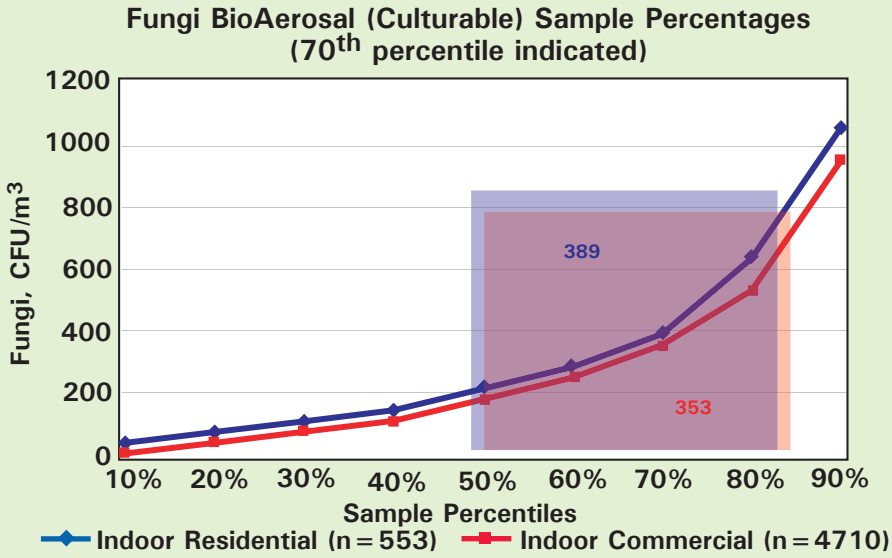
National Micro Lab Develops Guidelines for Mold

At the 2005 American Industrial Hygiene Conference Expo (AIHce) May 21-26 in Anaheim, Calif., Dr. Rajiv Sahay announced the results of a decade-long study on airborne culturable bioaerosols in a presentation entitled *Indoor Environmental Quality (IEQ): A 10-Year Case Study for Industry IEQ Guidelines* to an audience of more than 450 industry professionals.

As one of approximately 25 Ph.D. aerobiologists in the world, Dr. Sahay, laboratory manager for the Environmental Diagnostics Laboratory (EDLab™) in Clearwater, Fla., a division of Pure Air Control Services Inc., has spent the past ten years collaborating with colleagues regarding bioaerosols—or airborne microbial contaminants like mold—and, more specifically, the importance of introducing indoor environmental quality guidelines to assist in establishing normal background bioaerosol numbers for building indoor environments.

Study Results: Concentration of Fungi

	Percentiles of Total Samples (CFU/m^3)				
Concentrations	**50%**	**60%**	**70%**	**80%**	**90%**
Indoor					
Residential	211	282	389	635	1060
Commercial	176	247	353	530	953
Outdoor					
Residential	495	635	812	1096	1520
Commercial	600	777	955	1378	2614



Source: A 10-Year Case Study for Industry IEQ Guidelines

"To date, the industry, both private and public, has not been able to establish a basis by which to measure the baseline conditions for indoor airborne bacteria and fungi," said Alan Wozniak, president and chief executive officer of Pure Air Control Services, and one of several collaborators on the study. "With our extensive environmental background … we have been able to provide bioaerosol guidelines that are being used to determine what is normal in a home or building environment."

Throughout the decade-long study, more than 11,000 indoor and outdoor bacterial and fungal samples were taken in and around more than 7,000 commercial and residential test sites across the U.S. The outcome of Sahay's study provides normative data on culturable bioaerosols for both fungi and bacteria that has already been applied to other sectors of business, according to a Pure Air Control news release.

"Our industrial hygiene protocols and laboratory guidelines have been utilized in many important indoor environmental quality expert testimony cases," said Wozniak.

Indoor Environmental Quality (IEQ): A 10-Year Case Study for Industry IEQ Guidelines is the first of many indoor air quality studies presented by the Environmental Diagnostics Laboratory from the data garnered over the ten-year time period.

To obtain a copy of the 10-year study presentation, visit Pure Air Control Services' website, click on the 10-year study icon and enter the required information.

www.pureaircontrols.com or call 800/422-7873.

NEW HIRES

Disaster Kleenup International Hires National Sales Director

Disaster Kleenup International Inc. (DKI) of Bensenville, Ill., a network of quality, independent property damage restoration contractors, announced that it has hired **Joseph Caroccio**, an accomplished industry veteran, as its new national sales director to spearhead DKI's sales efforts nationally.

Caroccio comes to DKI from Crawford Contractor Connection where he was most recently the Northeast district manager responsible for 160 contractor relationships and 15 insurance carrier relationships. In his new role, Caroccio will be responsible for developing DKI's loss management business on a national level as well as managing the related sales staff.

David Garden

In addition, DKI announced that it has promoted **David Garden** to vice president of operations. In his new role, Garden will continue to lead DKI's operational efforts, as well as assume greater responsibility for the company's technology initiatives.

Since joining DKI in January 2002, Garden has served as director of corporate programs. In that role, Garden has been responsible for the management of DKI's claims, training and cooperative purchasing programs. He has been responsible for the company's 100 percent growth in aggregated purchasing volume, the success of DKI's priority emergency response program and the coordination of the company's national mobilization to cleanup after the storms that devastated the Southeast this year.

"Dave has played a crucial role over the last two years helping us to drive the business forward," said Dale Sailer, president. "This promotion reflects those efforts and our expectations for the future."

www.disasterkleenup.com or call 630/350-3000.

1-800-WATER DAMAGE Franchise Announces Addition of Industry Veteran

1-800-WATER DAMAGE, a Seattle-based franchise specializing in water damage restoration for homes and businesses, announced that **Joe Dobbins** has joined the company as a franchisee with four territories in northern Alabama. Dobbins is a 23-year business owner, veteran trainer and vice president overseeing the certification boards for the Institute of Inspection, Cleaning and Restoration Certification (IICRC).

Dobbins' industry experience spans back to 1982, when he first purchased an independent local water damage restoration business. Since that time, Dobbins has established himself as an expert in water damage restoration, teaching the trade for 20 years. As vice president overseeing the certification boards for the IICRC, Dobbins is responsible for all certification exams in 22 categories, ranging from water damage restoration to mold remediation. In addition, he is a member of the water damage standards committee and the mold standards committee for the IICRC.

"We are honored to have somebody with Joe's reputation and experience join the 1-800-WATER DAMAGE system," said Lisa Bongi, president. "It speaks volumes to our credibility when someone like Joe believes enough to invest in our concept. It raises the bar for our franchise system and says a lot about our presence as a growing national brand."

G-P Gypsum Announces Staffing Changes

G-P Gypsum, an Atlanta-based subsidiary of Georgia-Pacific Corp., has announced changes in its staffing.

Jeanne Reid joined the company as a field sales manager for DensShield® tile backer, the company's moisture- and mold-resistant tile backer board. Reid will cover portions of the Midwest including Chicago and Minneapolis. She comes to the company with a background in homebuilder sales and homebuilder programs. Reid will be working with homebuilders, flooring contractors, tile contractors and tile and flooring distributors.

Jeff Herrmann joins the company as a commercial roofing manager for DensDeck® roofing products, which are designed for water resistance, fire resistance and strength. Herrmann lives in Tacoma, and will cover the Pacific Northwest including the states of Oregon, Washington, Idaho, Montana and Alaska. After graduating, Herrmann started his own roofing company, which he ran for ten years. He later worked in various positions including branch manager and outside sales for Allied Building Products in Seattle.

Dan Caruth was promoted to Western commercial roofing manager and **Mike Vazquez** was promoted to the Eastern commercial roofing manager. Caruth previously held the position of commercial roofing manager for the Pacific territory, and has worked in the roofing industry for 22 years. He resides in northern California. Vazquez has worked for the com-

pany for the past three years as commercial manager for the Lakes territory. He lives in Akron, where he attended the University of Akron.

Chris Allen has accepted the position of commercial sales manager for Georgia, South Carolina and North Carolina. Allen joined G-P Gypsum in 1999 as a senior technical manager and held that position until he was appointed to his new position. He will be based in Atlanta.

Mike Wolf has been named field sales manager for Georgia and South Carolina. Wolf began his career with G-P Distribution as an OEM/Manufacturing inside sales specialist. He also worked with Prime Source as an outside sales manager for Georgia and South Carolina before rejoining G-P Gypsum in 2001.

Phil Garner has accepted the position of field sales manager for North Carolina and Eastern Tennessee. He most recently served as a building materials consultant for builders, architects and contractors in both North Carolina and South Carolina, advising them on how to research appropriate building science and correct manufacturing processes.

Rick Bowers will assume the position of Southeast residential sales manager, where he will promote G-P Gypsum's moisture-resistant DensGuard® products to homebuilders and building code officials community throughout the southeast.

Alan Zeedyk has been named commercial sales manager for Gypsum, where he will work with architects and builders in Florida to promote the company's DensGuard® products.

www.gp.com or call 404/652-4000.

EMLab Announces the Hiring of Two Recognized Mold Experts

Environmental Microbiology Laboratory Inc. (EMLab) of San Bruno, Calif., has announced the hiring of indoor air quality (IAQ) experts Dr. **John Shane**, Ph.D., and **Ann Atkinson** to lead its teams in the Midwest and Northeast regions, respectively.

Shane will head the Midwest region based in Chicago. Shane is an instructor in the field of spore trap analysis for environmental particles and mold. He has trained more than 3,000 analysts during the past ten years as professor and director of research of the McCrone Research Institute in Chicago. Shane will also join EMLab's Mold University faculty, which offers advanced training to IAQ professionals.

Atkinson will head EMLab's Northeast region based in Fairfax, Va. She brings 27 years of clinical and environmental laboratory experience, including five years as laboratory manager of Aerobiology Laboratory Associates Inc. Atkinson has a strong background in technical operations, as well as researching and developing IAQ laboratory methods.

"Our mission, which we share with our clients, is to offer the most scientifically accurate and highest quality service in our industry," said Dr. David Bell, president. "I believe that the addition of John and Ann to our team will have an immediate and positive impact on the service we are able to provide our clients, especially in the Midwest and Northeast."

www.EMLab.com or call 866/888-6653.

O'Hagin's Inc. Announces New Director of Technical Training and Compliance

Michael Fulton

O'Hagin's Inc., a manufacturer of attic ventilation solutions for mold prevention, based in Rohnert Park, Calif., has named **Michael Fulton** national director of technical training and compliance. According to information from the company, Fulton has a long career in the roofing industry and was an active participant in the development of Florida's nationally recognized building codes related to roofing products.

In his new position, Fulton will lead the company's outreach efforts to roofing contractors, builders and distributors on all technical and installation matters. He will work closely with O'Hagin's sales team to ensure its customers in the construction industry have the technical support they need to provide attic ventilation solutions. Additionally, as a key member of the senior management team, Fulton will oversee the company's product testing efforts. He will be based in the company's Lakeland, Fla., facility and serve the entire United States.

"Mike is a recognized leader in the attic ventilation industry," said David Mutter, president and chief executive officer. "He immediately provides our team with a deep reservoir of technical and compliance experience that will benefit O'Hagin's Inc. as we continue to expand."

If you would like to share information about new employees, recent appointments or outstanding coworkers, or if you or someone you know is interested in being profiled in a future issue, please email mheadley@moldmag.com.

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The Spread of Mold … to Other Industries

Efforts to stop or clean mold growth have been plaguing the building industry for a number of years now, but we all know that mold problems are not something new—and not limited to this industry. These articles from the consumer press take a look at some unusual places where mold problems have appeared.

Efforts Made to Save Japanese Tomb's Paintings from Mold

According to an April 18, 2005, article in *The Japan Times*, the Japanese Cultural Affairs Agency is considering dismantling a stone chamber that forms the ancient Takamatsuzuka tomb in the village of Asuka and reassembling it elsewhere to prevent further deterioration to its wall paintings due to the spread of mold. The unusual preservation method is being considered because the tomb's current situation makes it impossible to prevent further damage and stop mold growth, according to the article.

The article also stated that a task force on the preservation of the tomb agreed that, due to conditions in the tomb, it would likely be impossible to prevent more mold from growing inside the stone chamber even if the temperature and humidity were controlled. In addition, the substance used by the task force to eliminate mold is seen as another reason the wall paintings have begun to fade.

The tombs' paintings, which date from the late seventh to early eighth century, are designated as a national treasure.

ASHRAE Opens the (Fridge) Door to Research on Moldy Produce

When dealing with mold, HVACR contractors aren't usually looking inside the refrigerator, yet the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has announced that it is funding research to study the impact of household refrigerator storage conditions on the shelf-life of fruits and vegetables.

A typical U.S. household discards $2 per week of spoiled or moldy food, estimated ASHRAE's technical committee on residential refrigerants and food freezers, which is sponsoring the research. With some 104 million households, this amounts to $208 million per week or $10.8 billion per year lost to spoilage. In addition to cost, the risk of the spread of food-borne illnesses increases as storage conditions deviate from accepted guidelines.

The research by ASHRAE will examine effects of low storage humidity, high fluctuations in storage temperature and moisture condensation on the shelf life of lettuce and strawberries.

Mold on the Move

According to an April 1, 2005, article in the *Berkeley Daily Planet*, the Berkeley, Calif., public works department scrapped a plan to fuel a fleet of trucks with a derivative of vegetable oil when it was discovered that mold was growing on the fuel clogged engine filters and fuel injection pipes.

Since 2003, the city's fleet has used 100 percent biodiesel, which the article says emits 50 percent fewer cancer- and asthma-causing particulate emissions than regular diesel oil.

After two trucks reported engine failure as a result of the new fuel, the city began looking at other options. According to the article, the fungus growth that slowed the trucks also lives in regular diesel fuel, but is much more common in biodiesel fuels.

Golden Gate Petroleum operations manager Claude Brown stated in the article that the city's problem could stem from the presence of water in their storage tanks that promotes mold growth.

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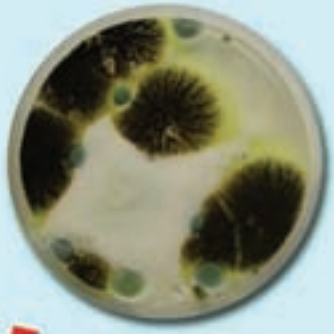

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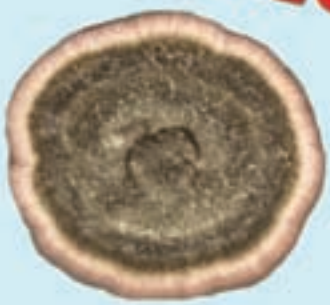

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