

# mold<sup>TM</sup>

November-December 2006  
Volume 3 | Issue 5

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on Page 15

**& MOISTURE MANAGEMENT MAGAZINE**  
The Magazine for Moisture Prevention and Remediation

## What to Ask About Your Antimicrobial

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### Industry Buyer's Guide

Whether you're looking for a particular product or just a way to get in touch with a specific manufacturer or service provider, you'll find it in our second annual Buyer's Guide.

## On the cover

*Although there are hundreds of chemicals on the market advertised as antimicrobials —there are even more questions surrounding their use.*



*Photo courtesy of National Mold Protection*

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## One More Lesson From My Alma Mater

I was first alerted to the problem at my alma mater by a November 2004 copy of *The Bullet*, the student newspaper of Mary Washington College (now University of Mary Washington [UMW]). "Mold in George Washington Hall Causes Health Problems" read the headline on the first page. Still relatively new to the mold industry at that time, I wasn't aware that the newspaper would mark the first of hundreds of headlines I would scan relating the latest mold problem in yet another school.

In the spring of 2006 I heard a rumor that UMW would be remediating. Determined to learn more, I called Richard Hurley, executive vice president of UMW, and found him eager to discuss the lengthy process of improving the administrative building.

He explained that a mold inspection had been conducted by MACTEC of Herndon, Va., as "a result of some employees giving us some fairly consistent complaints about upper respiratory issues."

John Mazur, senior vice president of MACTEC Engineering and Consulting's Herndon, Va., office, project manager on the job, recalled, "George Washington Hall was a very old building and they'd had water incursion over the years."

Although the problem was focused in just one office, according to the inspection report, school officials knew that cleaning up the existing mold wouldn't be enough to keep the problem from happening again.

"That [report] told us we need to fix this in a long-term solution," Hurley said.

Part of the problem turned out to be from groundwater.

"Our problems were excessive water infiltration, because the basement of this building is partly in the ground," Hurley said.

"That particular building had window wells, so people in the basement would get sunlight," added Mazur. "Over the years it had water intrusion."

The HVAC unit also contributed to mold problems.

"Our HVAC system was not appropriately sized to remove the moisture from the air, so that had to be replaced," Hurley said.

Reaching a solution required finances, a big challenge for schools, as I learned when researching the article on page 22. As a state institution, however, UMW officials did have one place to turn.

"We actually went to the State of Virginia and asked them for \$1.5 million to help us in this project," said Hurley.

With the budget approved, UMW was able to bring in Special Renovations Inc. of Chesterfield, Va., during the students' summer break.

"All air samples were clean and there was no cross contamination," reported Ruth A. Lovelace, director of environmental health and safety for UMW, following the remediation.

The final step was rebuilding the basement offices. As of August, Lovelace was waiting for the architect to return the finalized design, so that it could be submitted to the state for approval.

I certainly owe a lot to my alma mater for preparing me for my job as an editor, but I'd never expected I would also learn from UMW the processes of resolving a mold problem.

Megan Headley  
Editor, **Moldmag**



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### PUBLISHED BY

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540/720-5584 | fax: 540/720-5687  
www.moldmag.com

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# The Rest of the Story on Steel

## Why Steel Framing isn't a Fix-All for Mold Problems

**By Colin Murphy and Lonnie Haughton.**  
Murphy is the founder and managing partner of Trinity | ERD, in Seattle. Haughton is a construction codes and standards consultant with Richard Avelar & Associates in Oakland, Calif.

A recent article in a nationwide construction trades magazine expounded the mold-resistive virtues of light-gauge steel framing: "...wood framing is susceptible to damage from microbial growth and steel framing is not ... By framing in cold-formed steel, builders can significantly reduce their liability to mold claims."

We agree that numerous design, construction and performance benefits can result from the use of light-gauge steel framing, but it is also important for designers and builders to consider "the rest of the story."

For example, many of the residential mold claims that we investigate

involve mold growth upon the paper-faced gypsum drywall that is attached to the stud framing (whether wood or steel). In some of these claims, it could be argued that steel framing has only made the mold problem worse—because these walls lack the excess moisture storage capability afforded by wood studs.

In the February 2002 issue of the *ASHRAE Journal*, Dr. Joseph Lstiburek reports that the average wood-framed and wood-sheathed home can store 45 to 50 gallons of excess moisture within its wall assemblies. In contrast, he notes:

"Matters are considerably different when the exterior walls are constructed with steel studs and gypsum sheathing. Steel studs have no water storage capacity. Gypsum sheathing can store approximately 1 percent moisture content by weight before mold colonization occurs. Constructing the average

home with steel studs and gypsum sheathing yields a hygric buffer capacity of 5 gallons."

Dr. Lstiburek then adds the following warning:

"Constructing highly insulated steel frame assemblies with gypsum sheathing is one of the significant challenges of moisture engineering. This assembly combines two perilous characteristics: low hygric buffer capacity (low safety margin) with slow drying times. So even small amounts of moisture will cause problems."

In other words, without careful design review, it is possible that by framing in steel the designer and builder may actually increase their potential liability to mold claims. In this case, they may wish to reduce these risks by specifying gypsum-based drywall and sheathings that are not paper-faced.

### Plan for the Worst

Another potential problem with steel framing is seen in the photograph at left, which shows the exterior walls of Seattle's Coe Elementary School on a cold November morning. The distinct pattern of the underlying steel framing is visible due to the contrast between the surfaces wet with typical morning dew and the drier surfaces of the wall warmed by thermal conduction from the heated interior.

This photograph shows the effects of thermal bridging (*aka a 'thermal short'*) between the warm building interior and the wintertime exterior via the steel framing. Maybe some member of the project team failed to recognize the differing thermal performance properties of steel versus wood; at any rate, an effective thermal break to separate the walls from



The steel framing used to construct Coe Elementary School is highlighted by the damp spots on the exterior of the building.

*continued on page 8*





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**“Without careful design review, it is possible that by framing in steel the designer and builder may actually increase their potential liability to mold claims.”**



the steel framing appears to be missing. The bad news is that this condition represents a flagrant waste of energy; the good news is that this continual heating of the wall cavity during winter months may help prevent mold growth at the back side of the gypsum drywall if any moisture infiltration ever occurs at these walls.

However, let's step back for a minute and assume the worst had happened. Imagine that due to unexpectedly high heating costs, the school officials decide to lower the interior temperature during an extended winter holiday when the building is not in use. Then let's assume that at some point during this winter break the steel studs become the coldest surfaces within the wall cavity. Now, imagine that a small amount of vapor condensation (from an unknown moisture source) occurs at the surface of these cold steel studs, resulting in some water migration to the base of the wall cavity ... where a small area of mold growth then occurs at the bottom edge of the paper-faced gypsum drywall ... and is then discovered by maintenance personnel.


It's not a far jump to imagine this leading to a spate of finger-pointing by alarmed parents, school officials, attorneys and dueling mold and moisture experts. At this point in this completely hypothetical example, let's note again that this minor vapor condensation (and resulting mold growth) may not have occurred if the walls were framed with moisture-absorbing wood studs that remained warmer than steel studs.

### **Material Advantages**

Does this mean that we think wood framing is superior to steel? Of course not; light-gauge steel framing exhibits many performance properties (e.g., resistance to rot) that clearly are superior, while wood studs also exhibit some superior

properties (e.g., resistance to thermal transfer). Note, for example, that the free 'whole wall r-value calculator' provided online by the Oak Ridge National Laboratory at [www.ornl.gov](http://www.ornl.gov) demonstrates that a simple replacement of 2 by 4 wood studs with 3.5-inch steel studs in a wall with R-11 batt insulation results in an approximate 35 percent reduction in the wall's overall R-value. There are, of course, excellent code-approved design options for resolving this issue (e.g. adding an inch of rigid foam insulation under the exterior siding); however, the moral of the story is simply that the designers and builders who fail to recognize the key moisture and thermal performance differences between wood and steel stud framing run a great risk of eventually becoming embroiled in mold and moisture litigation.

Similarly, mold and moisture inspectors must understand these steel versus wood performance differences and adjust their investigative protocols accordingly. For example, for steel-framed walls, which can be more sensitive to vapor condensation problems, attention should be paid to the condition of any metal drywall screws that protrude into the wall cavity. Rusty-shanked screws may be evidence of performance deficiencies in the building envelope. In some cases, interior drywall will exhibit a shadow effect where it crosses steel studs that are experiencing some degree of vapor condensation.

Infrared thermometers and infrared cameras also can provide valuable information about the overall thermal and moisture-resistive performance of steel-framed walls. Prior to commencing any destructive testing, it may be a good idea to begin the investigation from the interior using an infrared camera to record exterior wall conditions. 

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# A Closer Look at Sealants

## Part II: Leak-Resistant Walls Require Attention to Sealants

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

In a previous column on the subject of water penetration through windows (*August-October 2006 Moldmag*), we discussed the role of flashing as part of a building's roof-to-ground weather-resistant barrier (WRB). Correctly flashed and sealed windows and doors integrate flashing materials with the drainage plane to provide this protection.

The second part of that window-WRB interface is the sealant that seals the joints between the rough opening and the window frame. In this application, expanding aerosol polyurethane foam can enhance the installation quality.

The usual procedure is to finish installing a window from the outside, and then run a bead of the foam between the rough opening's studs and the window frame from the inside. The foam then expands, taking the shape of the joint before curing and providing an effective barrier against air infiltration—a fast, straightforward and cost-effective approach. It's not yet known whether foam by itself can provide a reliable barrier against water penetration, but it can be used to create an effective continuous interior air seal between the window frame and the building framing, allowing for pressure equalization to occur within the perimeter cavity. This helps prevent water ingress into the cavity.

### The Pressure is On

However, when installers unknowingly use off-the-shelf general-purpose foams not intended for windows, problems can ensue. Great for many applications such as

sealing plumbing and conduit entrances, corner studs, basement cracks, etc., such foams exert pressure as they cure and expand. This can cause frame deflection, which can hinder sash operation or cause gaps to form that actually degrade window performance. Thus, many window manufacturers discouraged the use of these types of foams in the past.

Foam manufacturers have responded by developing single-component polyurethane foams. Expressly for fenestration installation, these products exert minimal pressure-build as they cure. They can be characterized as having high, medium or low pressure exerted by the fully-cured product. Since different windows tolerate various pressure-build, the foam sealant's specific values should be obtained from the foam supplier as determined by testing. An independent third-party conformance test report should be available upon request.

### The Standard for Expanding Foam Performance

Working through AAMA, foam manufacturers have helped develop standards for the dependable use of foam products in the installation of fenestration products. AAMA 812-04, *Voluntary Practice for Assessment of Single Component Aerosol Expanding Polyurethane Foams for Sealing Rough Openings of Fenestration Installations* is based on the properties of pressure-build, beam deflection and dimensional stability and offers test methods for measuring their magnitude.

Under AAMA 812-04 protocol, pressure-build is measured by filling a cavity in a wooden test fixture

with foam and measuring the pressure that develops as the foam cures with a pressure transducer. The maximum pressure-build is determined by averaging maximum foam curing pressure (pounds per square inch or psi) vs. time data for five specimens.

**A foam is generally considered suitable for door or window installation applications if its dimensions vary no more than  $\pm 10$  percent.**

Once the maximum pressure has been established, it can be translated into the amount of beam deflection that results by calculation or by physical test. The latter is accomplished under AAMA 812-04 by a test in which foam is injected between a sample of the material and a substrate to which the sample is firmly fastened. The degree of beam deflection is monitored for 24 hours and the maximum deflection noted. Manufacturers can relate the beam deflection then to their specific window frames.

Knowing the extent of deflection allows a window manufacturer to determine which foams are suitable for the installation of their products.

### Long-Term Viability

Dimensional stability is an indicator of foam performance over the long term. It is defined as the resistance of the cured foam to shrinkage or expansion under a variety of temperature and humidity conditions. While excessive foam curing pressure can produce frame deflection as just discussed, excessive post curing expansion or shrinkage can compromise the foam's ability to provide an effective air seal. A foam sealant is generally consid-

ered suitable for door or window installation applications if its dimensions vary no more than  $\pm 10$  percent.

The AAMA 812-04 test procedure for determining dimensional stability involves applying foam in the gaps formed by four layers of wood, which are then clamped together. After several days in specified temperature and humidity conditions, the spacing between the wood layers is measured and compared to the original spacing.

### Installer Tips

The first step an installer should take is to make sure the right type of foam is being used. If the window manufacturer's recommendations are not provided, the foam container label may indicate whether the foam is suitable. Ideally, the foam manufacturer should have tested the product in accordance with AAMA 812-04 and either has documentation available or has appropriately labeled the product. The conformance information must include the pressure-build result expressed in psi. For example, an acceptable conformance statement would be: "Conforms to AAMA 812-04 at X pressure-build." A window manufacturer can verify whether the actual stated pressure-build is acceptable for its window product. Installers should always consult with the window manufacturer to obtain any specific recommendations regarding the use of foam.

Also, the installer should be aware that different foams require different periods of time to cure and reach maximum pressure-build—from as little as a half hour to more than six hours, depending on jobsite temperature and



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humidity. A good rule of thumb to allow enough cure time is to wait until after foam has been applied to the last window on the jobsite to begin installing trim. The foam is considered sufficiently cured when a small nail can be inserted into the bead and then removed without leaving residue on the nail.

Foam sealants and flashing are great examples of how all elements in the wall system, as well as all participants in the supply and installation

chain, must work together to realize the intended air infiltration and water penetration resistance of the installed fenestration product. 

AAMA 812-04, as well as all other AAMA documents, may be obtained online from the AAMA Publications Store at [www.aamanet.org](http://www.aamanet.org). For more information, contact Larry Livermore at 540/877-9957 or [llivermore@aamanet.org](mailto:llivermore@aamanet.org).





## ASHRAE Proposes New Moisture Control Standard

Computer simulation tools have been developed to predict thermal and moisture conditions in buildings, but the results can vary greatly with the assumptions for indoor and outdoor conditions. To help combat this issue, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is proposing a standard that formulates design assumptions for moisture design analysis and criteria for acceptable performance. ASHRAE's proposed Standard 160P, *Design Criteria for Moisture Control in Buildings*, goes beyond prescriptive recommendations for moisture control in buildings that are currently in the ASHRAE Handbook and in building codes.

"Standard 160 gives us a methodology for the first time to make consistent design recommendations, such as the need, type and placement of vapor barriers, in any climate," said Anton TenWolde, chair of the committee that drafted the standard. "The standard requires the designer to think about the interior conditions that will be maintained in the building and the effect that may have on the building envelope."

TenWolde said that the idea for the standards has been



**Anton TenWolde says ASHRAE's proposed moisture control standard came out of a need for more performance-based approaches to moisture design.**

in the works for eight or nine years, originally growing out of ASHRAE's Standard 62.1-2004, *Ventilation for Acceptable Indoor Air Quality*, in which a number of moisture control issues came up beyond its scope.

"It comes out of a frustration from some of us that all of our recommendations for moisture control tended to be very prescriptive. We felt it was about time that we come up with a more performance-based approach to moisture design in buildings," said TenWolde.

A new committee was formed to address the issue.

"Our feeling was there were already lots of guidelines," said TenWolde. "We really felt that we needed to begin laying the foundation for moisture engineering and that was a really novel concept at the time."

TenWolde said that, at press time, he was just beginning to receive informal feedback (the public review period closed in early November).

As far as when the document is expected to be approved, TenWolde said it depends on the number of comments received. He anticipates that comments will be dealt with before ASHRAE's summer meeting in June, with another public review ... and thus more comments,

## SLU Researchers Study Best Ways to Get Rid of Mold

Armed with a \$408,000 grant from the Department of Housing and Urban Development, a team from Saint Louis University School of Public Health hopes to create universal standards for getting rid of mold in homes and buildings.

Anu Dixit, Ph.D., assistant professor of environmental and occupational health at Saint Louis University School of Public Health and principal investigator, said that the team will review existing, inconsistent guidelines for mold removal from homes and buildings by surveying about 400 mold assessment and remediation professionals. The team will then use the responses to develop a single comprehensive, plan for homeowners and mold remediation experts to follow.

"The timing couldn't be better for Hurricane Katrina and Rita victims, some of whom are still battling mold problems in their homes and businesses," said Dixit. "There are some standards and guidelines for the homeowners and mold remediation experts, but there's no way of knowing what practices are being adopted in the

field. After this phase of the study is done, we would eventually like to test those varying practices and determine if there's good science backing these up."

During the Mississippi River flooding of 1993, Dixit contacted Donna Shalala, then-Secretary of the Department of Health and Human Services, requesting the opportunity to study homes in the bi-state area for mold contamination and the resulting health effects.

Through a grant from the Missouri Department of Health, Dixit and her colleagues began a study and found that mold reappeared in one-third of the reoccupied flooded buildings. This suggested that cleaning and repairs were not always effective in mold removal and prevention.

Mold removal was once again thrust into the spotlight in the wake of Hurricane Katrina in September 2005.

"Establishing across-the-board science-based standards for remediation so that mold doesn't come back might make the recovery for flood victims a little easier," said Dixit.

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and perhaps further review ... beginning next summer.

ASHRAE's Standard 62.1-2004 is also facing a review process. A proposal to include new ventilation rates from the standard in the International Mechanical Code (IMC) was approved. The change would lower zone ventilation in many zones, particularly those with high-occupant density, and improve overall ventilation results in systems where zones with differing ventilation requirements are served by a common ventilation system.

"For many high occupant-density zones ... these new rates reduce outdoor air intake requirements by 50 percent or more, compared to the IMC," said Dennis Stanke, chair of the Standard 62.1 committee. "HVAC systems for these buildings can be designed with fewer air conditioning tons and operated using less energy. Lower intake rates tend to reduce both first cost and operating cost."

Final hearings for the code change proposals take place May 21-22, 2007. If the proposal is accepted, it will be included in the 2007 code supplement.

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### NEW YORK: Court Finds No Evidence in Claim that Mold Causes Illness

Judge Shirley W. Kornreich of the New York County Supreme Court ruled in September that plaintiffs in the case *Fraser v. 301-52 Townhouse Corp.* “failed to demonstrate that the community of allergists, immunologists, occupational and environmental health physicians and

scientists accept their theory—that mold and/or damp indoor environments cause illness.”

The plaintiffs, Colin and Pamela Fraser, originally brought the case forward for health problems allegedly arising from their water-damaged New York City apartment, although those allegations of personal injury except for respiratory problems, rash and fatigue, were later withdrawn. Court documents showed that the defendants, 301-52 Townhouse Corp. and its president, Janice Johnson, moved for a Frye hearing to determine whether the plaintiffs’ allegations, “that mold in their apartment caused them respiratory problems, is generally accepted in the relevant scientific community and whether the methodology used by plaintiffs to measure the mold, was within generally accepted scientific methods.” The hearing later was expanded to address causation of

respiratory problems by water-damaged buildings.

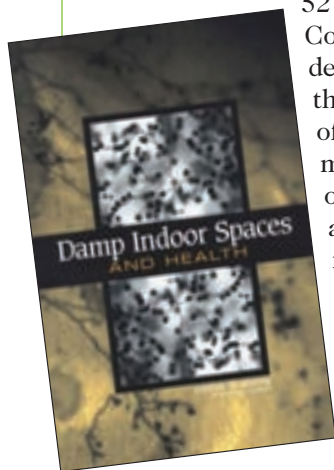
The Frye test, according to the court documents, “means that an expert may testify regarding novel scientific principles, procedures or theories if they have gained general acceptance in the relevant scientific community.”

In addition to medical records, the lawyers on both sides introduced a large body of scientific writings—more than 70 articles and books for both sides—arguing either that mold did cause health problems or couldn’t be strongly linked to health problems.

The two documents found most compelling by the court—the Institute of Medicine of the National Academies’ 2004 publication *Damp Indoor Spaces and Health* and the 2006 position paper of the American Academy of Allergy Asthma and Immunology, *The Medical Effects of Mold Exposure*—found no causative link between mold and health problems.

The court ruling stated, “these two papers were issued by prestigious scientific organizations and, most importantly, reviewed the available research papers on the subject for validity, a task far beyond the capability of this court. The papers concluded that there was insufficient evidence to support the contention that a causal relationship exists between health outcomes and damp and/or moldy indoor environments.”

Judge Kornreich also cited a formal position paper from the American College of Occupational and Environmental Medicine coming to the same conclusion, that “scientific evidence does not support the proposition that human health has been adversely affected by inhaled mycotoxins in the home,



**This 2004  
publication  
from the**

**Institute of Medicine was cited in a court ruling that there is insufficient evidence that damp or moldy environments lead to health problems.**

### CALIFORNIA: Judge Sides With Builder in Mold Lawsuit


Shea Homes was absolved of any liability for damages that a Stevenson Ranch, Calif., family alleged had arisen out of mold exposure in their home. Jurors in the personal injury suit returned a defense verdict for Shea, a private homebuilder, following a three-week trial. The family of three claimed a host of bodily injuries from exposure to mold while living in a single-family home that Shea had constructed.

The Achin family sought in excess of \$20 million (reduced to \$5 million at trial) for various personal injuries. Prior to trial, the court eliminated many of their claims, finding that the general medical community has rejected any link between household mold and injuries other than typical allergic reactions in otherwise healthy people, according to information from the defense’s law firm, Wood, Smith, Henning & Berman LLP. After trial, the jury returned its verdict that Shea was not negligent, made no misrepresentations of fact and did not cause any harm to plaintiffs. The jury further found that Shea acted reasonably in responding to the family’s initial warranty requests, and that the claims asserted were wholly unrelated to any actions of Shea.

Les Thomas, president of Shea Homes Southern California, stated, “We are gratified by the jury’s verdict. We would have preferred to have resolved this matter outside the court system, but we are prepared to defend the quality of our construction when necessary.”

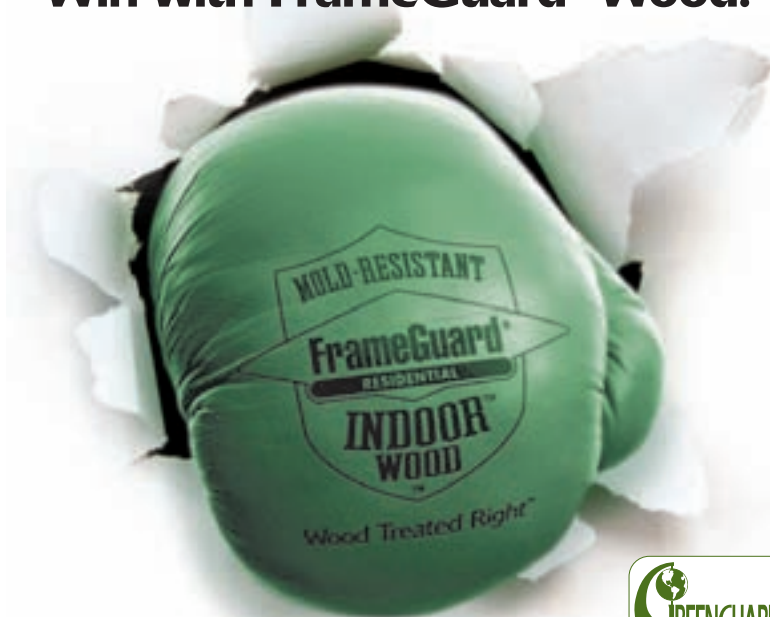
school, or office environment.”

“The decision is comprehensive—the result of the court permitting the parties to develop an extensive record—and presents a significant hurdle for those seeking to assert personal injury claims based on nonspecific symptoms and the presence of mold in an indoor residential environment,” said Thomas V. Juneau, Jr., Esq., of Schechter & Brucker, P.C., the lawyer for the defense.

The plaintiff's attorney, Elizabeth Eilender with Jaroslawicz and Jaros, could not be reached for comment at press time. 

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## EDUCATION

### Hurricane and Moisture Resistance Star in LaHouse LIVE

The LaHouse, an ongoing project by Louisiana State University's (LSU) AgCenter in Baton Rouge, La., hosted LaHouse LIVE in July 2006. More than 450 homeowners and homebuilders attended the free event, which featured expert-led, hands-on educational sessions that focused on the best practice construction techniques and materials to use to increase a home's hurricane and moisture resistance. The day-long event's educational sessions covered subjects ranging from how to properly frame a wall to the benefits of using weather-resistant barriers.

LaHouse LIVE, part of the Hurricane-Resistant Construction Project led by Building Media



LaHouse LIVE brought together building experts to present techniques for building hurricane- and moisture-resistant homes in Louisiana.

Inc., shares best building practices, code updates and other building science-related information with builders and remodelers of single-family homes in the hurricane-affected areas of the

Gulf and Atlantic coastal states. LaHouse is an LSU AgCenter project that is designed to showcase solutions for Louisiana's unique climate and conditions.

"A lot of people are rebuilding,"

## CSG Presents Mold ... The Video Game?

The first game-based learning program for online continuing education in architecture and design, CS Learning Solutions' Construction Simulation Games



"Construction Scene Investigation," the first game-based simulation approved for AIA/CES credit, challenges players to uncover the source of a residential mold problem and recommend design solutions.

(CSG), has been qualified for CES credit by the American Institute of Architects' (AIA) continuing education committee. CertainTeed Corp. of Valley Forge, Pa., will be the first CES provider to adapt CSG games to its online courses. The company's debut game-based activity module, "CSI: Construction Scene Investigation," will challenge players to investigate and solve a residential mold problem.

Using lessons learned in the course, players navigate a dynamic cutaway of a house to find the source of unchecked and persistent moisture, and then recommend design changes to prevent further mold growth. Because CSI is scenario-driven, each user

may experience a different outcome based on decisions made in the course of the investigation. Games are scored "on the fly," with passing grades reported electronically to AIA for CES credit.

"The educational benefits of game-based learning in academia and professional development have been widely documented; games bridge the gap between generations and appeal to a wider audience than conventional learning methodologies," said Edward Hutzler, vice president of education for CS Learning Solutions. "Enhancing our current online interactive courses with a new gaming approach will engage people longer and lead to higher retention levels of course material."

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said Stuart Gauthier, associate county agent for the AgCenter's Lafayette and Vermilion Parish Cooperative Extension Services. "If they're going to do it again, they might as well do it right. With such an expensive project, you don't want to go into it without first doing some research—and the AgCenter has already done it for you."

## WEBSITES

### Georgia-Pacific Launches Educational Program to Help Consumers Build

Atlanta-based Georgia-Pacific's building products division has launched [www.gpweatherbuilt.com](http://www.gpweatherbuilt.com), a new website that it says is designed to educate consumers about durable building products and best building practices to help protect homes against elements such as high winds and moisture.

The WeatherBuilt educational website features detailed information for consumers about building products from Georgia-Pacific, including DensArmor Plus™ paperless drywall and Plytanium Plywood roof sheathing, which the company says resists the effects of moisture better than wood-based

## COMPANY NEWS

### Lowe's to Offer Katrina Cottage Materials

Lowe's Cos. Inc. has finalized a license agreement with designer Marianne Cusato to be the exclusive retailer of housing plans and associated building materials needed to construct Katrina Cottages. According to information from the company, the homes consist of premium quality products such as rot- and termite-resistant siding, durable 25-year warranted metal roofing, moisture- and mold-resistant drywall, framing, insulation, fixtures, electrical, plumbing and appliances. The homes are designed to withstand heavy rain and winds up to 140 miles per hour, meet most hurricane codes and the International Building Code.

Four designs of the cottages will be initially available in Lowe's stores throughout Mississippi and Louisiana. The first four plans Lowe's intends to offer its customers range from 544 square feet to 936 square feet.




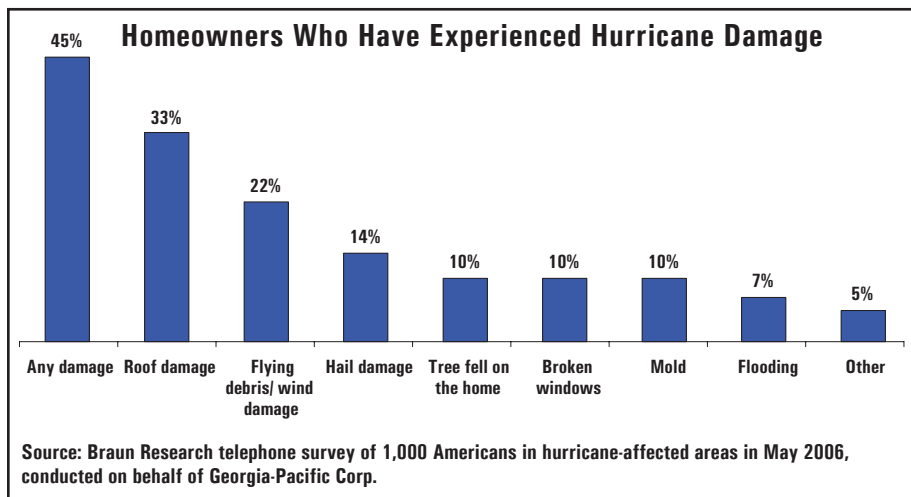
panel products. The company also tapped building science expert Mark LaLiberte to share tips with consumers about how to select the right building materials and ensure that they are properly installed.

As part of the WeatherBuilt™ educational program, Georgia-Pacific conducted a consumer sur-

vey with Braun Research to gauge consumer interest in learning more about high-performance building materials and best building practices to prepare for the storm season. According to the survey, 93 percent of Americans living in hurricane-prone areas say it is important for their homes to be strong and durable to withstand severe weather.

## BRIEFLY


The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) says it is exploring a certification program that will focus on areas of the building environment such as commissioning, health care facility engineering, building operation and sustainability. The program is expected to launch in summer 2007. 





# Chilling Out

## How Mold Remediators Use Dry Ice

 Tina Moore is a marketing specialist at Cold Jet LLC.

**D**ry ice blasting is one alternative to traditional methods of mold removal, such as sanding or scraping with a wire brush. It can grant access to tight and confined spaces, such as attics or crawlspaces, where mold can be found decaying wood beams and trusses. It also allows remediators to save contaminated wood, which is a valuable cost-savings tool since the price of wood is rising across the country.

In addition, the process is non-toxic, non-corrosive, non-abrasive and non-conductive. As dry ice particles are accelerated into a pressurized air stream to impact the surface being cleaned, they will not interrupt any electric

compounds or wiring and will not cause toxic harm to the operator. The dry ice is at a temperature of -109.3°F, and as it blasts against the contaminant, it causes it to shrink and lose its adhesion from the substrate. The process does not generate any secondary waste stream because the carbon dioxide sublimates into the atmosphere. The result is complete spore removal from the wood in little time, and with minimal effort.

### Ice in Action

Tom Monacelli of Advanced Indoor Air, a mold remediation company in Mount Arlington, N.J., finds his dry ice blasting system particularly effective where engineered roof or floor joists and decking are impregnated with mold spores.



Photo courtesy of Advanced Indoor Air.

Some contractors find that dry ice blasting allows them to quickly remove mold in tight areas that otherwise might be inaccessible.



Experts report that dry ice blasting removes approximately  $\frac{1}{32}$  of the wood surface being cleaned, without damaging the structural integrity of the wood.

"In a single pass, my crews can ... remove mold from multiple right-angled surfaces that are cumbersome and time-consuming to access with sanding or scraping," says Monacelli.

The dry ice blasting system also provides the company's remediation crews with access to tight areas that may otherwise be unreachable, such as 3- to 4-inch gaps in framing and rim joists above concrete-stem walls.

Monacelli says that, in most cases, dry ice blasting has reduced cleaning time for his crew by at least 60 percent. Prior to his machine purchase, his remediation crews would spend about six days cleaning a mold-infested attic in a 1,500-square-foot home by manually crawling into the space to sand and scrape the moldy wood. With dry ice blasting, he says, he can clean the same size attic in two days with half the amount of manpower.

Dry ice blasting will typically remove about  $\frac{1}{32}$  of the wood surface being cleaned. This abrasion is enough to effectively remove the mold spores, but not enough to alter the structural integrity of the contaminated area. Since there is no secondary waste stream to attend to, the only thing left to do is vacuum the residual mold and wood that was removed from the blasting.

### Staying Safe


As with any mold remediation project, proper personal protective equipment should be worn and the area being treated should be properly sealed off so that the mold spores do not fly into other nearby areas. In addition, caution must be employed to manage oxygen levels in confined areas. Often the main concern with introducing carbon dioxide gas into an environment is that the build-up of CO<sub>2</sub> can be hazardous to the oper-

ator's health. This is only a concern in closed, tight areas, such as a crawlspace. However, with CO<sub>2</sub> monitors and a negative air set-up, problems can be avoided. The crews must vent fresh air into the work area and exhaust the buildup of carbon dioxide gas to the outside. This negative air flow environment with HEPA filtration is already being used on mold remediation projects in tight and confined attics and crawlspaces to ensure operator safety.

### Where to Begin

Another concern of contractors new to dry ice blasting is the training required to get started and the process of actually acquiring the dry ice used for blasting. In fact, the training needed is minimal. Once the contractor becomes familiar with the machine and the various aggression levels and how they affect the surface being cleaned, mold removal is relatively intuitive from then on.

Users of dry ice systems should be sure to contact the local dry ice distributor. In most cases, the cost of ice ranges from 20 to 35 cents per pound, and can be delivered on site the next day. The ice comes in large 500 pound bins and the distributor will typically come and pick it up after the contractor is finished, or the contractor can pick up and drop off the ice to save some costs. This is also somewhat dependent upon location.

Dry ice blasting is a fresh approach to restoration and remediation and is currently being used by restoration contractors across the country. Its ability to clean surfaces, like wood, thoroughly and efficiently is an irresistible alternative to sanding and scraping or chemicals. 



## INDUSTRY NEWS

Remediation  
IAQA Convention Held in Nashville

Much like the lush palm trees, breathtaking orchids and rising fountains beneath the glass ceiling of Nashville's Gaylord Opryland Resort, the Indoor Air Quality Association (IAQA) Annual Convention, held October 25-28, was a celebration of growth. This year's meeting marked the first convention for the officially unified IAQA, Indoor Environmental Standards Organization (IESO) and American Indoor Air Quality Council (AmIAQ).

"One year ago ... we were here to make a proposal ... and we received your approval," noted Glenn Fellman, IAQA executive director, during the convention's unification address. At last year's meeting, the three organizations introduced their plan to unify—with AmIAQ taking certification duties, IAQA handling memberships and training and IESO focusing on standard making—to members of the three groups (see *October-December 2005 Moldmag*, page 20). The last year has been one of "ironing out the wrinkles" as they revise their respective missions.

"For the first three quarters of this year we have gone down the path called implementation of this process," said Robert Baker, president of IAQA.

### Through the Trade Show Aisles

Although the event was subject to a late change in dates and location, moving abruptly to Nashville because facilities in Baltimore reportedly were not able to fulfill their obligations, Fellman said he was "elated" over the size of the crowd that was able to gather for the convention. More than 1,000 people took advantage of educational programs and exhibits on the trade show floor. On the show floor, during a series of short hours in the morning, afternoon and evening, attendees learned about new products, caught up with colleagues and discussed industry trends.

"It's great seeing old buddies," said Chuck Molyneaux, president of Pure Air Inc. in Virginia Beach, Va. Molyneaux traveled to Tennessee with some of those friends and coworkers from the Virginia Beach-area who are looking to start an IAQA chapter in their region. "The show gets better and better every year," he added.

"It's been the best show we've had probably in three years," said Jeffrey LaPointe, president of RSG Technologies. This year RSG offered incentives for customers to buy its dry ice equipment at the show, and according to LaPointe, customers were quick to take him up on the offer.

It was the second year Fluke exhibited at the IAQA show, and the company went from a single tool for the

market to a full suite of tools to show off to remediators.

"This year, it's all yellow," said Eric Hudson, product marketing manager, referring to Fluke's increased booth size and its array of bright yellow tools—from the new temperature humidity meter to thermal imaging products to HVAC electrical tools.

According to Hudson, the audience's response to the 975 AirMeter introduced at the show was "overwhelming." Hudson says that's because the new tool, which simultaneously measures, logs and displays temperature (wet bulb and dew point), humidity, carbon dioxide and carbon monoxide levels, doesn't require an instruction manual—attendees could pick up the tool and immediately get a feel for how to use it.

In their second year at the show, Relle IQ Solutions had something new as well—the company had moved from prototypes of their products to the real deal.

"It's been really good for us," said Relle's Kelly Gaudin of the show.

The company's smart sampler provides five tools in a single housing, functioning as an air pump as well as measuring temperature, humidity, pressure differential and air speed. The Relle Smart Cassette was designed to work with any pump to collect samples for up to 24 hours. According to information from the company, the cassette evenly distributes particulates across the entire trace, allowing for culturing and/or microscopic examination from the same sample.

"We're trying to push people toward long-term sampling," said Gaudin. "Not the 5-minute snapshot."

Adam Giandomenico was exhibiting at the show for the first time in his new role as president of Adams Instruments. The former president of Lighthouse



Relle IQ Solutions' (from left) Kelly Gaudin, Michele Relle and John Edgar answered questions about products that were introduced at last year's show as prototypes.



**Eric Hudson (far left) let show attendees pick up and get a feel for Fluke's new array of tools before stepping in to answer questions.**

Worldwide Solutions said that he launched his new company about four months ago and is now offering handheld particle counters to the industry. On display at his booth was Model 3013, which Giandomenico says can display up to three channels of simultaneous particle count data, temperature and relative humidity.

Core Environmental Corp. chief executive officer (CEO) Matt Tapscott said that his company is taking a new direction as well. Environmental Service Professionals Inc. (ESP) of Palm Springs, Calif., is in the process of acquiring the MoldTech Mold Inspection Software and Mold Management Inspector (MMI) training system from Core.

Tapscott said ESP would use its resources as a franchise network of remediation and inspection professionals to help move the training forward to the industry.

"For us, it was like trying to move mountains," Tapscott said.

Demi DeSoto of Lighthouse Worldwide Solutions found himself answering many questions for attendees.

"This is a great audience," said DeSoto. "The most eager, willing to learn."

Lighthouse had revealed a brand new handheld particle counter, 3016-IAQ, that approximates mass concentration in  $\mu\text{g}/\text{m}^3$ . With six channels of simultaneous particle counting, the Handheld 3016 displays both cumulative and differential particle count data as well as temperature and relative humidity data.

The 2007 IAQA Annual Convention is scheduled for October 14-17 at the MGM Grand in Las Vegas. In the meantime, look for more information on IAQA products and seminars in this and future issues of **Moldmag**.

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## MERGERS AND ACQUISITIONS

### Environmental Service Professionals to Acquire MoldTech®

Environmental Service Professionals Inc. (ESP) of Palm Springs, Calif., has announced the signing of a letter of intent (LOI) to acquire MoldTech Mold Inspection Software from Core Environmental Corp. The LOI also includes acquisition of the company's interest in the proprietary training system, Moisture Management Inspector (MMI), as well as a commitment for the retention of the services of Claire Jordan Grant, president, and Matt Tapscott, chief executive officer (CEO), of Core.

ESP offers franchised inspection services for addressing mold and moisture intrusion. The company also provides services directly to builders and homeowners through subscription-based maintenance programs.

"We are very excited about the opportunity to acquire the industry standard software for mold inspections and report creation," said Ed Torres, president and CEO of ESP. "The acquisition is in keeping with our commitment to excellence and leadership within the indoor air quality industry. We are very pleased that the acquisition of MoldTech software also brings to our team Claire Jordan Grant and Matt Tapscott, whose experience and reputation will be a tremendous asset."

In addition, ESP, in conjunction with the Indoor Air Quality Association, American Indoor Air Quality Council and Legends Environmental Insurance Service LLC, has launched the Certified Environmental Home Inspector (CEHI) program. With this certification, the traditional home inspector can provide mold and moisture inspections and testing to their clients.

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### Home Solutions Acquires Fireline Restoration

Home Solutions of America Inc. of Dallas, a provider of recovery, restoration and rebuilding/remodeling services has acquired Fireline Restoration Inc., a privately-held provider of recovery and restoration services throughout Florida, Louisiana and Mississippi.

Founded in 1996, Fireline provides catastrophic storm response, water mitigation, drying, mold remediation, water, fire and wind restoration, and move-outs and contents restoration, for commercial, industrial and residential properties. Based in Tampa, Fla., Fireline is certified in multiple aspects of the restoration industry, including smoke, fire, water and mold. The company has been active in the recovery and restoration activities surrounding hurricanes Wilma, Katrina and Rita. **m**



## SENSORS AND MONITORS

**CogniScent Sniffs Out Mold**

CogniScent Inc. of North Grafton, Mass., has received a United States patent for its proprietary DNA-based sensor material to be used with its *ScenTraK*™ odor-detection technology.

In conjunction with Hamilton Thorne Biosciences, CogniScent is in the final production phase of a program to develop a series of tools to detect the presence of mold in residential and commercial buildings.

*ScenTraK* is a lightweight, handheld, highly sensitive, opto-electronic platform that models the way biological noses work to detect, identify and discriminate many different airborne compounds in real



time (approximately 2 seconds). *ScenTraK* models olfactory sensing by utilizing 23 biologically-inspired attributes. The system uses an opto-electronic sensor array, and its output drives software algorithms trained to identify specific olfactory patterns. *ScenTraK*'s patented use of an array of broadly responsive sensors enables identification of both specific compounds and odor signatures associated with a particular application without compromising sensitivity.

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## SAMPLERS

**OMNI Onsite™ Detects Molds Quickly**

Sceptor Industries of Kansas City, Mo., is offering the OMNI Onsite, an integrated, portable system for taking air samples and detecting the presence of molds, mycotoxins or certain bacteria in potentially contaminated buildings—all in two hours or less.

The OMNI Onsite collect-detect system for in-the-field evaluation of bioaerosols was designed to give first responders and IAQ managers a single-unit,

onsite solution that is capable of detecting certain fungi, without sending samples to a lab and waiting for a response.

The new collect-detect system is based on the OMNI™ 3000 air sampler with glass contactor. The glass contactor is proven to increase collection efficiency over previous models by a full 15 percentage points, to 65 percent in the 0.5 to 1.0  $\mu\text{m}$  particle size range.

The OMNI Onsite system includes a choice of detection packages for evaluation of biohazards: fluorometric detection to evaluate total fungal mass and immunoassay evaluation of *Penicillium/Aspergillus* genera and *Stachybotrys chartarum*. Other assays are under development.

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**IAQ Monitor Goes Wireless**

GrayWolf Sensing Solutions of Trumbull, Conn., has introduced a monitoring kit for measuring key indoor air quality (IAQ) parameters. Bluetooth wireless technology communicates information from the probe to Windows Mobile Pocket PC or to Windows Notebook computers, eliminating the need for cables.

The DirectSense-IAQW measures temperature and relative humidity as well as carbon dioxide and carbon monoxide. An optional photo ionization sensor measures volatile organic compounds (VOCs) down to the low ppb range.

The probes have a range of up to 30 feet from the mobile PC. Probes may be positioned out in the occupied zone, and the mobile computer may be hidden or locked up while it collects trend data over hours, days or weeks. Once data and field notes have been collected on the mobile PC, GrayWolf software allows for detailed reporting on walk-through surveys and on trend log sessions, including text, graphs, tabular data, photos and attached digital notes.

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### DampGuard® Indicates Current Humidity

The DampGuard indicator is the latest introduction in a new line of humidity instrumentation from Rotronic Instrument Corp. of Huntington, N.Y. The DampGuard, a unique indicator for indoor wall surface humidity measurement, helps occupants to manage critical surface humidity. The current humidity value is displayed by four differently colored LEDs on a 4-point scale.



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### MOISTURE METERS

#### Tramex Sends a Signal to Inspectors

Tramex Ltd., based in North America in Littleton, Colo., is offering the Moisture Encounter Plus, a non-destructive moisture detector for wood, felt-roofing, drywall, plaster, brick and more. The meter features



external rubber electrodes that make direct contact with the material being tested for sensitivity, repeatability and depth of signal, and has no probes or pins to cause surface damage. It uses low-frequency signals to detect moisture through a variety of materials. Three measurement ranges are optimized for testing different materials.

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### Delmhorst Designs New Three-in-One Meter

Delmhorst Instrument Co. of Towaco, N.J., has designed its TotalCheck specifically for IAQ specialists, home inspectors and general contractors. TotalCheck is a three-in-one meter, integrating pin and pin-less technologies and a thermo-hygrometer. It includes full onscreen reading recall with date and time stamp, job grouping, infrared linkage to a PC or laptop, easy-to-navigate menu options, customizable auto-shut off and a case.



The thermo-hygrometer calculates grains per pound and dew point, and measures temperature and relative humidity (RH). The removable RH sensor conforms to the ASTM-F2170 standard for concrete testing. The meter corrects for 69 different wood species.

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#### Abbeon Now Distributes Trotec Moisture Meters

Abbeon Cal Inc. of Santa Barbara, Calif., has announced that it has been named the new U.S. supplier of the German-made Trotec moisture meters.

Among the company's offerings is the T2000 moisture meter, which interprets readings from a wide variety of probes. The meter displays relative humidity, absolute humidity, dew point, air temperature, surface temperature and material moisture. It features a thumbwheel for one-handed operation.

The T650 and T600 moisture meters offer non-destructive options for measuring moisture in materials. The T600 measures up to a depth of 11 ¾ inches. The handheld T650 moisture meter measures near-to-the-surface moisture up to 1 ½ inches away from the surface. Wall and floor dampness can be detected and displayed in real time.

All of the Trotec moisture meters are manufactured under ISO 9001 standards.

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# Learning Curve

## School Districts Discover How to Address Mold

Just as teachers and school administrators are learning to deal with new issues such as the standards of learning and “no child left behind” programs, school districts are also learning to address mold—before it happens. Some districts around the country are incorporating environmental specialists into their facility staff.

### The Lookout for Moisture Problems


Paul Duerre, CIE, an environmental specialist for the Killeen, Texas, Independent School District, has handled indoor air quality (IAQ) issues for approximately 50 campuses since 1993. Although not licensed to remediate mold (due to liability issues with the school district), Duerre is trained to investi-

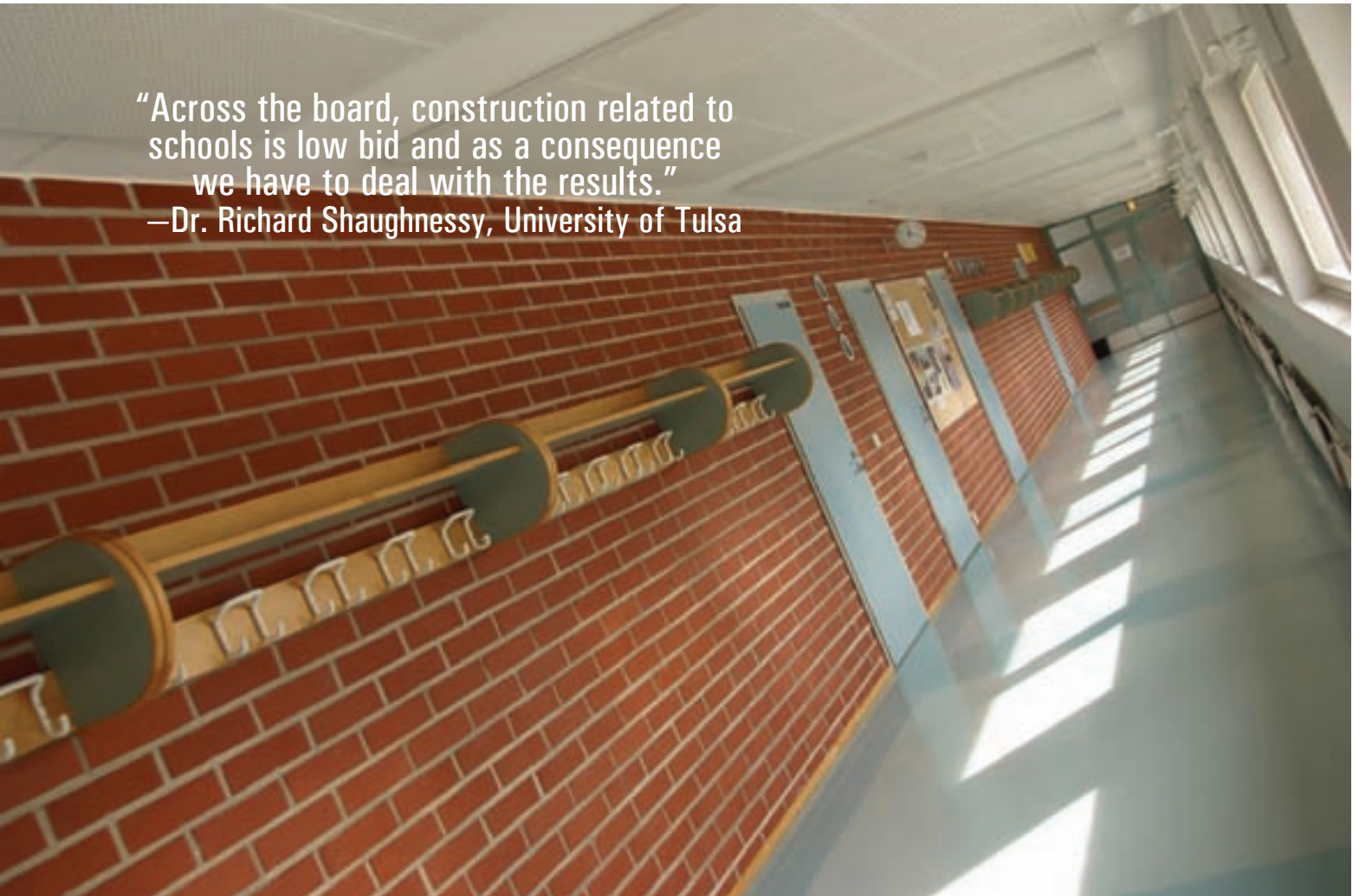
gate moisture and mold problems, and it's something he's dealt with many times in the past.

Paul Strauss is the environmental manager of the Environmental Control Office (ECO) for the Palm Beach County, Fla., school district (PBCSD).

“The PBCSD was very foresighted and created an environmental compliance department more than 18 years ago to assist with numerous environmental issues that affect district operations including IAQ,” says Strauss. “My role as a manager is to supervise the IAQ program, radon gas program and petroleum storage tank program.”

These environmental specialists say the key to keeping their schools mold-free is spending more time on preventive maintenance than on

 Megan Headley is editor of **Moldmag**.



“Across the board, construction related to schools is low bid and as a consequence we have to deal with the results.”  
—Dr. Richard Shaughnessy, University of Tulsa

reactionary clean-up. According to Duerre, it's all about keeping a watchful eye on the state of the buildings.

There are a few areas on which Duerre recommends focusing closely. Roofs are one trouble-causing area.

"Don't wait until it's totally falling apart," says Duerre. "That's what we've gone through and done."

He says his district has set up a system where they check the roofs thoroughly every two to three years, and replace them as needed. He adds that it is important to know when replacements will be due so they can be put into the budget up front.

Strauss says, "The district recently initiated a building envelope maintenance program to address building shell maintenance items including roofs, window assemblies, wall and floor construction joints."


"You have to have periodic surveillance for water incursion," recommends John Mazur, senior vice president of MACTEC Engineering and Consulting's Herndon, Va., office. "You need to have that water incursion fixed immediately and then to check and see how much water damage has occurred and to dry it out."

Duerre adds, "We've updated our HVAC systems extensively throughout the district—one for energy savings, the other one to make sure we're heating and cooling correctly."

Duerre warns that one of the big mold-causing problems he runs into is buildings being retrofitted with HVAC systems that weren't designed for them.

Strauss notes that the Palm Beach County school district has a preventative maintenance program for HVAC systems "to ensure peak performance and clean equipment."

Research is currently being done to address the importance of properly running and fitting HVAC sys-



**To avoid mold problems, professionals recommend keeping an eye on the building and anticipating maintenance needs. In particular, roofs and HVAC systems should be given regular preventative maintenance.**

tems in schools. During the Indoor Air Quality Association (IAQA) annual conference in October, Dr. Richard Shaughnessy, the IAQ research program director at the University of Tulsa, introduced a study which looks at the relationship between ventilation rates in classrooms and their impact on student performance. Shaughnessy notes that insufficient outdoor air is a complaint that consistently shows up in schools, but that little research has been done actually showing the impact of poor IAQ on students' performance.

"The goal of the study is to motivate schools to prioritize efforts to improve indoor environment quality (IEQ)," he says.

Specifically, his research has involved collecting information in 54

schools on outdoor air ventilation rates, moisture conditions and water damage, microbiological pollutants, airborne particle concentrations, combustion byproducts, condition and performance of HVAC systems, frequency and quality of cleaning and outdoor pollution sources. These conditions were correlated to the academic performance of fifth grade students in those schools, using the results of standardized tests for reading and math.

The research found a modest association between ventilation rates and student performance in math standardized test scores. A

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similar trend was also observed for reading test scores, although Shaughnessy says the association did not reach statistical significance. He is pursuing further research, which he hopes will make IEQ a priority for school districts in the future.

Another problem Duerre mentions is that technology and computers add heat, and that's a factor that isn't always taken into account with HVAC system and ventilation.

Duerre recalls that one of the biggest mold problems he's ever found was in a room that held a server tower. There was no adequate ventilation in the room, and it remained hot. Next door was a sealed storeroom that stayed fairly cold. When investigating a complaint, the staff pulled the filing cabinets away from the shared wall in the computer room and found the problem caused by the condensation that developed as a result of the differing temperatures.

"[It was] totally covered in mold on that wall; insulation in that wall was sopping wet," says Duerre.

## Preventative Designs

In addition to preventative maintenance, preventative design is becoming more important in school construction. It's not uncommon for relatively new school buildings to develop substantial mold problems, and that's a problem that needs to be addressed during the design process.

"The ECO works closely with other district departments to ensure building design and construction and/or renovation of district facilities are planned and completed with the least possible negative indoor environmental impact," Strauss notes. "There are improved building and construct techniques

that help prevent water intrusion and building envelope deterioration. There are also many construction consultants that specialize in improved building design and construction for IAQ now.

**"The big issue is working around the student body. Kids are kids—they get curious and they want to look behind barriers that they shouldn't be looking behind."**

**—John Mazur, MACTEC**

"With the proper attention to design and planning and adequate financial resources, new building construction can successfully provide a healthful environment for occupants," Strauss says.

Duerre warns that project oversight is required to ensure that newer buildings are commissioned correctly.

"You have to oversee the project," says Duerre. "You end up getting the lowest bid ... and you can't look at everything."

He adds that a contractor with "a lot of foresight" can help prevent many problems. Architects also need to be involved in the project.

"Although the dramatic rise in citizen awareness of IAQ issues is a fairly new phenomenon, the engineering and architectural community has responded with many new design ideas and products to improve indoor air environments: improved air filtration, dehumidification and HVAC equipment, flooring alternatives, low VOC adhesives and similar 'green' products are just a few examples," says Strauss.

Duerre notes that with the wide variety of climates in Texas, architects have to design buildings to suit the humidity and related demands in each area.

The Environmental Protection Agency (EPA) has addressed the importance of dry design with a new informational tool called the IAQ Design Tools for Schools pro-

gram (based on its original Tools for Schools program, discussed below). The guide features a section specifically on moisture control, with introductions to some of the key areas that can contribute to future mold problems.

But poor design isn't the only problem leading to mold in new schools, according to Shaughnessy.

"Across the board, construction related to schools is low bid and as a consequence we have to deal with the results," he says.

## Trouble in School

For these professionals, addressing the moisture and mold problem may be the easy part of the job. The biggest challenges arise in working around students and staff and finding room in limited budgets for proper maintenance.

For Keith Kronan, vice president of Special Renovations Inc. of Chesterfield, Va., that's the only problem there is when remediating schools: "Nothing other than scheduling."

"There are just a lot of coordination efforts when you're working in universities," says Mazur. "Not only in moving people out."

Mazur notes that working around technology, particularly if a mold problem crops up in an area that contains computers or a mainframe, can be a challenge.

Because of coordination challenges, many schools aim to get remediation efforts done during breaks.

"The big issue is working around the student body," Mazur adds. "Kids are kids—they get curious and they want to look behind barriers that they shouldn't be looking behind. Most schools and universities will do this type of work when the student body is not there, when



The professionals say most schools aim to do remediation work during breaks, to keep students away from potentially dangerous materials and to keep concerns about mold down amongst parents, faculty and staff.

they're home for the holidays or summer break."

Mazur says that most schools aim to do remediation work during breaks for two reasons. The first, most importantly, is to keep students from being exposed to mold. Secondly, no matter how proud a school might be of its quick reaction to a mold problem—nobody wants to show off the temporary trailers housing classrooms or panic parents that conditions might be unsafe for children.

"They don't want to hide anything but they don't want to necessarily advertise it either," says Mazur.

It's not just the lack of understanding from parents that can cause a problem. The word mold can lead to concern amongst staff and faculty as well.

Duerre says that it's not uncommon for teachers and staff to attribute any and every health problem to conditions in the school—after the word mold is mentioned.

"One of the problems teacher's cause is they talk between each other. One says I feel this way and the other says so do I and things get out of hand real quick," says Duerre.

Shaughnessy says that he sees an "overwhelming fear of Pandora's box" when it comes to dealing with IEQ problems. He says he sees that as a reason many school districts don't address the problem—they don't want to deal with it.

"That's the worst stance to take," Shaughnessy says.

"Proper education and awareness coupled with the financial resources to address IAQ issues is essential in reducing IAQ concerns in schools," adds Strauss.

However, the "financial resources" available can be another major problem for school districts. When teachers in some districts are left responsible for buying basic supplies for their classrooms, it's evident that maintenance is not going to be at the top of the list of priorities.

"In some cases, budget restrictions also play a role in the maintenance and up-keep of school buildings," says Strauss. "Budget restrictions sometimes hamper school districts' ability to properly maintain and clean school buildings."

"If you can do preventative maintenance you can prevent most of the factors that lead to mold," says Duerre. He adds, "I don't think that's going to happen quite yet till people understand the maintenance budget is not the first thing that gets cut."

"There is little money to convince administrators [to address IAQ]," says Shaughnessy. Without proper funding, searching for solutions to unseen IAQ problems will remain low on the list of school district priorities.

## What to Do When You Find a Problem

Part of alleviating the fear about mold for parents and staff is to address a problem immediately and to make sure that there is a set course of action to take.

"Parents usually call their campus and talk to the principal and then, in turn, get together with the teacher or principal and put a work order into me," says Duerre. "Maintenance staff usually calls me directly and say 'we found something, can you check this out?'"

Like Duerre's computerized work order system, which has a special section for IAQ systems, Strauss also logs into a central database all concerns or complaints, along with a description of the issue and facility contact information. The complaint is issued a log number, and then a staff member is assigned to investigate.

"Typically, a site visit is necessary and generally takes place within four days of the initial call," adds Strauss.

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Following the investigation, Strauss prepares a report to present findings and recommendations for corrective action.

Duerre says that for his investigations, he uses a combination of interview sheets that he has come across over the years, as well as a software program that asks questions about the investigation.

"In some cases, the corrective action is handled by in-house staff," Strauss continues. "If warranted, outside consultants and contractors are brought in to assist the district to resolve the issues."

Environmental professionals working for school districts have an additional tool at hand: EPA's Tools for Schools kit. Shaughnessy calls it "an excellent program that is underutilized as a whole."

According to information from EPA, the kit contains materials that show schools how to carry out a plan of action to improve indoor air problems at little or no cost. It provides best practices, industry guidelines, sample policies and a sample IAQ management plan.

"I use parts of it," says Duerre. "I use the wheel extensively, that's one of the best things they've ever come up with. It's excellent."

The problem solving wheel to which Duerre refers is an interactive tool that EPA designed to help school staff identify IAQ emergencies and to guide them toward corrective actions. According to information from EPA, this resource was designed to help school staff understand various factors related to the indoor environment. Duerre says that it's a helpful tool, particularly for training new employees and doing diagnostics, because it offers a "next step" in the investigation.

"Instead of having to say 'okay, where will I go from here,' it at least

gives you an avenue," says Duerre.

"Clearly, the Tools for Schools program and others like it are a step in the right direction and more assistance would be welcomed," says Strauss.

However, Duerre adds, "There are some things in there that I don't agree with."

Primarily, Duerre says, the tool

**"Proper education and awareness coupled with the financial resources to address IAQ issues is essential in reducing IAQ concerns in schools."  
—Paul Strauss, Palm Beach County, Fla., school district**

has to be used with the specific needs of the user's school district and community in mind. It isn't a play-by-play tool but more of a guide toward examining problems.

"They wrote it generically. They want you to adopt these, but this needs to be qualified," he says.

## School Lessons Learned

One of the big pieces of advice these professionals offer when it comes to addressing potential mold problems in schools is communicating clearly with the parties involved about any potential problems.

"Make sure you communicate with the teacher and the parents if that's who you're dealing with. Don't let them out of the loop. Don't make them feel like you're trying to hide something," Duerre advises. He adds, "Show them you are trying to do something to correct it."

"Education and communication are key to any successful IAQ program," adds Strauss. "Address problems promptly, document your actions thoroughly, commu-

nicate effectively with all affected parties and IAQ issues need not escalate. Many IAQ issues can be resolved easily and inexpensively if identified early and corrected quickly."

"Make sure you address them immediately—don't wait," Duerre agrees. "The biggest thing I can say is follow your procedures but make sure you act as fast as possible."

Strauss also encourages school districts to familiarize their staff with IAQ issues, so that there is no confusion if a problem is found.

"Maintaining good IAQ should be a priority for all occupants, therefore, everyone should be familiar with basic IAQ principles and practices," he says.

But if a problem is found, Mazur advises, "First of all you have to find out what type of mold growth it is. Some species are considered to be more hazardous than others. You need to identify what type of mold it is and what the risk is to the school."

For the next step, Mazur says, "you should call someone who is an experienced indoor air quality professional and has mold expertise."


Kronan agrees. "Hire a consultant to come up with a protocol," he recommends. He adds, "Try to determine what the cause of the mold is and fix that first before doing a remediation because if you don't correct the cause it will almost certainly come right back."

Duerre agrees.

"The biggest thing is finding the source of a problem," he says.

## References

For more information on the Tools for Schools kit, visit [www.epa.gov/iaq/schools/tools4s2.html](http://www.epa.gov/iaq/schools/tools4s2.html).

For more information on IAQ Design Tools for Schools, visit [www.epa.gov/iaq/schooldesign/moisturecontrol.html](http://www.epa.gov/iaq/schooldesign/moisturecontrol.html). 



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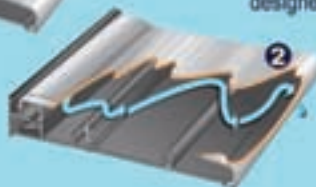
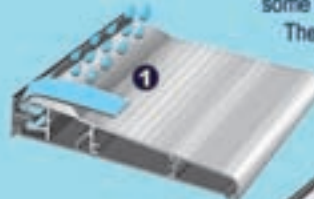
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## What to Ask Before Applying Antimicrobials

Megan Headley is editor of **Moldmag**.

Clearly the goal of the mold remediator is to improve a client's living or working conditions by removing a substance that could be potentially harmful to a person's health or a building's stability. But how many remediators—or for that matter, builders and other professionals focused on mold prevention—worry about harming a building's occupants with the products they put into a building in order to keep out mold?

There are hundreds of chemicals available today that advertise their fungicidal or mold inhibiting properties and a variety of other claims from lifetime warranties to 99.999 percent efficacy. Just figuring out the type product to use can be confusing. But, according to some professionals, choosing the wrong product can be damaging to the job.

### What the Customer Needs to Know

With confusion about even the proper term to use (see *An Antimicrobial By Any Other Name*, page 33), it's a sure bet that remediators have plenty of questions when it comes to the types of chemicals they'll apply to a structure. Safety is at the top of the list.

"The number one issue people always ask about ... obviously about the safety of it," says Clint Allen, managing director of Protective Coatings Group of Jacksonville, Fla.

"Everybody today has a concern about toxicity on chemicals being used in their homes," says Tony Douglas, vice president of Sporidicin International of Rockville, Md.

More specifically, Jay Colburn, president of Environmental Restoration in Greensboro, N.C.,

# Chemical Confusion

Photo courtesy of National Mold Protection

**"I like the coatings because after thorough source removal and after implementation of environmental controls then a coating acts as an inhibitor to help prevent reoccurrence of mold growth. But it is critical to know environmental conditions."**

**—Jay Colburn, Environmental Restoration**

asks, "Does it contain heavy metals? Carcinogens? Does the product off-gas? Does it admit VOCs?"

Brett Glava, managing partner with National Mold Protection of Irvine, Calif., says that he also looks for VOCs, heavy metals and, in general, the toxicity of a chemical before applying it to a structure.

"We don't want to be creating a more toxic environment than we're cleaning up," he says.

"What kind of personal protective equipment (PPE) do we need when we're spraying this?" is one important question Mark Robertson, key account manager of Sensible Life Products of Flamborough, Ontario, says he frequently hears.

Next, remediators get down to more practical considerations.

One of Colburn's first questions is about the warranty of the product. "I'm seeing products with 2-to 10-, 20-, 30-year and now lifetime warranties," says Colburn. "What keeps the warranty valid? Is there a certified applicator program to teach you how to apply it?"

Douglas says he spends a great deal of time addressing individual questions on how to use a particular antimicrobial in a specific situation—and that there are lots of these types of questions since no two scenarios are the same.

"They can call me and I can address about any scenario," says Douglas.

"The credibility of the manufacturing company" also becomes important, according to Allen.

"Does the product breathe?" asks Colburn. "If the house flooded and you've got wall cavities that have gotten wet ... can you still dry through the coating?"

Tim Zech, chief operating officer of Sostram Corp. of Roswell, Ga., says his product is not sold incorporated into a "paint sealant" because painted or coated surfaces

can create a barrier that affects the permeability of the wood.

Professionals point out that some of these products, such as paints and sealants with EPA-registered ingredients, can only inhibit the growth of mold on the coating and not on the building materials to which it is applied.

"Some of the questions I ask are: is it a proven chemical? What's the coverage? What are my costs associated with it? But most importantly is it proven," says Keith Harris, president of Environmental Mold Services of Orange County, Calif.

Environmental Protection Agency (EPA) registration is one part of the proof many remediators look for.

"There are tons of questions around EPA registration," adds Cole Stanton, vice president of sales of Fiberlock Technologies Inc. of Andover, Mass.

### **Is It OK With EPA?**

Among the concerns of antimicrobial applicators, EPA registration appears to be near the top of the list.

"Most people that are looking for a mold product, the first thing they want to know is whether or not it is EPA-registered," says Douglas.

"I don't want to apply anything that's not EPA-registered. Clients look for that. Industrial hygienists look for that," says Colburn. "It's like a UL listing on a piece of equipment."

"As long as we're good to go with the EPA and OSHA I'm happy to use it," says Glava.

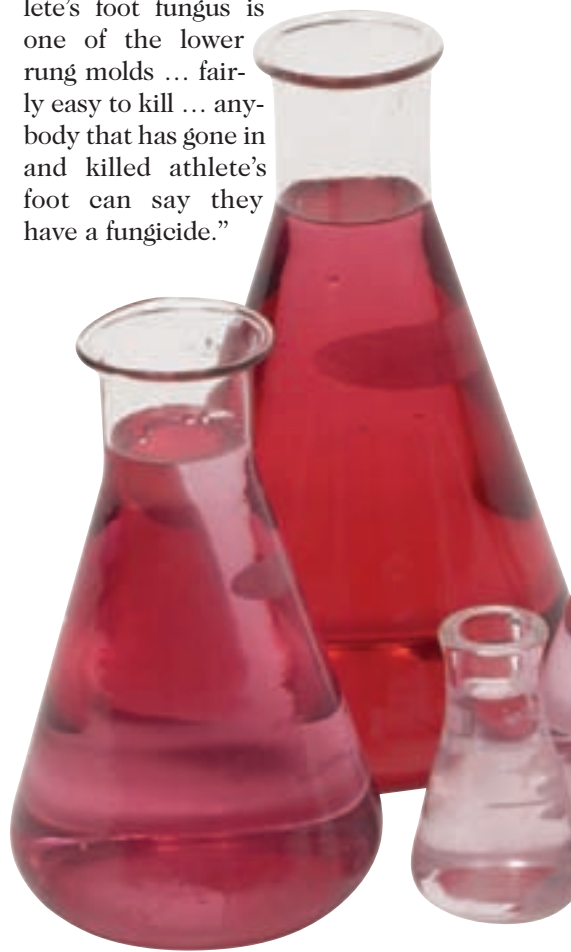
So what exactly does EPA registration mean for a product? And what sort of rigors does a product have to go through to hold that label?

"EPA registration is a good thing," says Dr. Jeff Lloyd, vice president of research and development of Nisus Corp. of Rockford Tenn. "EPA first checks to see if the materials are safe to be applied in the way they are used. (Some of these paints do con-

tain CA Prop 65 listed carcinogens, for example.) Secondly, EPA checks to see if they do actually work. They do both by reviewing actual data, not marketing information."

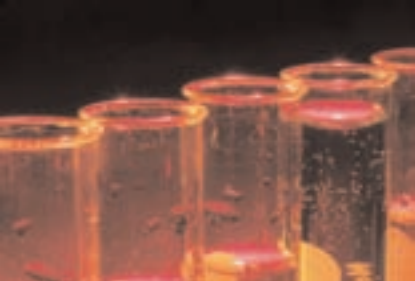
"It's a painstaking process," according to Zech. "It took us four years to get registered even though the EPA was jumping up and down saying they need products like this."

"You have four types of products that are EPA-registered: you have antiseptics, sanitizers, disinfectants and the highest tier is sterilization," Douglas explains. He adds, "For each of these categories, EPA has a standard set test on specific organisms that you have to pass. If you want to make fungicidal claims, then you have to pass the basic test for athlete's foot fungus. Sadly enough, athlete's foot fungus is one of the lower rung molds ... fairly easy to kill ... anybody that has gone in and killed athlete's foot can say they have a fungicide."



*continued on page 32*





# Chemical Confusion continued

Douglas adds that anything other than the standard tests can cost upwards of \$100,000, with costs averaging around \$30,000.

"You have a spectrum of efficacy—what bugs, microorganisms do you have to kill," says Robertson.

According to Zech, registration must "show the product is safe to be used in domiciles."

"They also look at the environmental impact," says Robertson.

For instance, as Zech notes, EPA looks at whether the chemical is persistent in the environment.

These professionals stress that any product that makes a kill claim must be EPA-registered.

"If they're making a kill claim, they've got to be labeled," Tracy Lantz, regulatory specialist of the EPA's office of pesticide programs, antimicrobials division, explained during a presentation at the Indoor Air Quality Association's annual conference (*see page 20*).

In addition to the EPA registration number, the label includes the ingredients in the product, precautions to take when using it, directions for use, locations where it can be used and organisms against which it is effective.

In addition, Stanton notes that some mold inhibiting products, such as paints or coatings that may contain EPA-registered ingredients, are not regulated by EPA.

According to Lantz, if a paint or coating does not list an EPA registration number, then any antimicrobial added to the formula is present to protect the paint film or coating but not the surface to which it has been applied.

"These are film fungicide con-

taining paints/coatings that stop mold on the paint film," says Lloyd. "This approach is good for exterior millwork and siding and makes the paint look better and last longer. The manufacturers and applicators can claim that the paint is resistant to mildew under the EPA treated articles exemption."

He adds, "However, they cannot, and do not, kill or prevent mold on wood and as soon as they say they do (kill, control, prevent, inhibit, stop etc), they are now pesticides by federal definition and have to have full EPA registration or they are actually illegal."

"They're not regulated by EPA, because they don't kill and therefore are exempt. So how does a remediator determine the difference between a product that is of professional grade ... how do you differentiate that from one of the kitchen and bath paints that unfortunately some paint manufacturers are trying to crossover market into IAQ?" asks Stanton.

Independent laboratory testing can become a critical tool for manufacturers.

Colburn says that independent lab studies are of particular use for him, as well as comparisons between competing products.

Glava tested a product he uses in a different way. When using a new product from Protective Coatings Group for the first time, he applied it to a mold problem in the home of the certified microbial consultant (CMC) with whom he frequently works. The effectiveness of the product was approved by the CMC, which was proof enough for Glava to continue to use the new chemical.

## The Voices of Experience

There are plenty of factors of which to be cautious, but with research in advance, antimicrobials can be of use.

"I like the coatings because after thorough source removal and after implementation of environmental controls then a coating acts as an inhibitor to help prevent reoccurrence of mold growth. But it is critical to know environmental conditions," says Colburn. "Some products don't work well in certain environments. That's why you have to do your homework on them."

Do your research, but also, Robertson advises, be sure to take the simple step of reading the label carefully and following it to the letter.

"The biggest thing I would say, and guys don't do it enough, is they take the words of their distributors instead of reading the label," says Robertson. "That black and white label is a legal contract between me the manufacturer, the EPA and the contractor that if used in this way it will do what it says it does and maintain public safety."

Robertson says that when applicators deviate from the written directions—generally by applying too much of the product—then they will have a problem on their hands.

For starters: "It is a violation of Federal law to use a product in a manner inconsistent with its labeling," says Lantz. Lantz notes that anything said verbally by the manufacturer to the customer counts as "labeling."

Lower on the list of concerns is that handling inconsistent with the manufacturer's directions voids the warranty.

Robertson adds, "I always make the analogy, if you go to doc and have strep infection and he gives you ten antibiotics and it says take two pills for five days, do you take five today and five tomorrow?"

### Want to Register? Or Find Someone Who Is?

To learn how to register an antimicrobial, visit EPA's Registration kit at [www.epa.gov/pesticides/registrationkit](http://www.epa.gov/pesticides/registrationkit).

To look up an EPA-registered antimicrobial manufacturer or product, visit <https://oaspub.epa.gov/pestlabl/ppls.home>.



Lloyd recommends that applicators ask questions about compatibility between the chemicals and construction materials.

"They can have a negative impact on plastics, wood composites and other components as well as cause corrosion to metals so require double hot dipped galvanized or stainless steel nails, fixtures and fittings," warns Lloyd.

### Coming Trends

As Harris notes, "Everybody's trying to make their own coating now."

Stanton agrees that there has been "an absolute explosion in products that are being thrown into the ring."

He adds, "I don't know if we've reached the apex of this surge in new chemical products, but I think we're pretty close. We should start to see a stabilization soon as the forces that will help to distill the industry: standards, state regulations, remediators' experience, etc."

With the flood of new products in the market, professionals can't help but pick up on trends.

"I think everybody wants to claim the longest warranty. They also want to claim the ease of use, as far as application," says Colburn.

"We see a lot more demand for the prevention side, that's a growing trend," said Allen. "You will see a shift from reactionary to prohibitive."

"One of the trends we see in terms of the preventative aspect, our product is labeled to be mixed with certain termiticides," says Zech. He notes that in the Southern United States, builders have to apply a termiticide during construction.

"The trend is toward offering more versatile and multifunctional products," adds Allen.

Robertson has noticed a trend toward greater awareness among remediators making these decisions

### An Antimicrobial By Any Other Name

Before figuring out what chemical works best for a particular structure, mold professionals may find themselves tripping over terms: what is the difference really between a fungicide and biocide, a sanitizer and a cleaner?

"The term biocide is really inaccurate," says Tracy Lantz, regulatory specialist of the EPA's office of pesticide programs, antimicrobials division. By definition, a biocide is a chemical that can kill any type of living organism—the fungus and the client. "If you're using products to kill fungus, the term antimicrobials might be more appropriate," she says.

Cole Stanton, vice president of sales of Fiberlock Technologies Inc. of Andover, Mass., says that in older publications, and by the EPA's definitions, "authors tended to use the word antimicrobial as an umbrella."

"One of the biggest sources of confusion even among professionals, and certainly among building owners and homeowners, goes without saying, is understanding the difference between products that are intended to work in the present versus the future tense," says Stanton.

He feels that chemicals can be divided into two basic families.

"One is your disinfectants, your sanitizers—your 'snapshot-in-time' products, which can be used as cleaners, but their primary intention is to kill microorganisms, including mold. The other family is your 'future-tense products' which are designed to inhibit future microbial growth—sealants, coatings, fungicidal coatings and other type of growth inhibitors."

Tony Douglas, vice president of Sporidicin International of Rockville, Md., notes that there are four specific types of antimicrobials that the EPA identifies.

"You have antiseptics, sanitizers, disinfectants and the highest tier is sterilization," he says.

According to information from the EPA, sterilizers are used to destroy or eliminate all forms of microbial life—fungi, viruses and bacteria—as well as their spores. EPA also uses the term sporicides to describe these products.

Disinfectants are used on hard, inanimate surfaces and objects to destroy fungus or bacteria, although the spores will not necessarily be destroyed. Sanitizers, on the other hand, reduce, but do not necessarily eliminate, microorganisms to levels considered "safe" as determined by public health codes or regulations. Lantz further explains that sanitizers only kill bacteria, while disinfectants kill bacteria and fungus.

Antiseptics, which prevent infection by inhibiting the growth of microorganisms, are used on or in living things so are actually regulated by the Food and Drug Administration.

to purchase antimicrobials.


"Customers are becoming more aware of what EPA registration means ... they're asking better questions. Really looking at labels, comparing products," he says.

Stanton agrees.

"The legitimate professional remediators, as well as the consultants and specifiers are all becoming more and more educated about these types of issues, which means it's ever more important for the remediators to take care they're

using products with proper EPA registration."

Stanton says that the growing awareness will eventually help narrow down the hundreds of available products to those that work and those that don't.

"When it comes to chemicals, the remediators will weed out the products that don't perform," says Stanton. "Like a surfer, they want to stay ahead of that curve; they don't want the wave crashing down on them." 

# Mold and Moisture Management 2007 Buyer's Guide

## Welcome to the Second Annual Industry Buyer's Guide

Our second annual Industry Buyer's Guide offers even more of the products and services you've been searching for than last year, as well as information on how to find them. This guide was prepared from information collected from those manufacturers and companies that filled out our questionnaire on what they have to offer to the industry.

Advertisers are listed in bold type.

Please send any additions or corrections to Penny Stacey at [pstacey@moldmag.com](mailto:pstacey@moldmag.com).

## Companies

### A

**ACGIH**  
1330 Kemper Meadow Drive  
Cincinnati, OH 45240  
P: 513/742-2020  
F: 513/742-3355  
[www.acgih.org](http://www.acgih.org)

**Advanced Building Products**  
95 Cyno Drive  
Sanford, ME 04073  
P: 800/252-2306  
F: 207/490-2998  
[www.advancedflashing.com](http://www.advancedflashing.com)

**Advanced Distributor Products**  
2175 West Park Place Boulevard  
Stone Mountain, GA 30087  
P: 770/465-5567  
F: 770/465-5599  
[www.adpnow.com](http://www.adpnow.com)



**Advanced Mold Diagnostics LLC**  
500 Abbott Drive, Suite D  
Broomall, PA 19008  
P: 610/328-4350  
F: 610/328-0167  
[www.advancedmolddog.com](http://www.advancedmolddog.com)  
See our ad on page 13.

**Advanced Remediation Solutions**  
1203 Abercorn Avenue  
Atlanta, GA 30346  
P: 770/393-1300

**Alpine Air Corp.**  
220 Reservoir Street  
Needham Heights, MA 02494  
P: 800/628-2209  
F: 781/449-8099

**Altus Group**  
P.O. Box 10097  
Lancaster, PA 17605  
P: 866/462-5887  
F: 864/260-3364  
[www.altusprecast.com](http://www.altusprecast.com)



**Anabec Inc.**  
9393 Main Street  
Clarence, NY 14031  
P: 800/369-8463  
F: 716/759-7829  
[www.anabec.com](http://www.anabec.com)  
See our ad on page 16a.

**APA - The Engineered Wood Association**  
7011 S. 19th Street  
Tacoma, WA 98466  
P: 253/565-6600  
F: 253/565-7265  
[www.apawood.org](http://www.apawood.org)

**Aquafin Building Products**  
505 Blue Ball Rd, Suite 160  
Elkton, MD 21921  
P: 410/392-2300  
F: 410/392-2324  
[www.aquafin.net](http://www.aquafin.net)



**Arch Wood Protection**  
1955 Lake Park Drive, Suite 100  
Smyrna, GA 30080  
P: 770/805-3215  
F: 770/803-2576  
See our ad on page 15.

**Armaceil LLC**  
7600 Oakwood Street Extension  
Mebane, NC 27302  
P: 800/866-5638  
F: 919/304-3720  
[www.armaceil.com](http://www.armaceil.com)

### B

**Bailey Engineering Corp.**  
880 Jupiter Park Drive, Suite G  
Jupiter, FL 33458  
P: 561/744-1384

**Baytek LLC**  
9030 W. Sahara #424  
Las Vegas, NV 89117-5744  
P: 702/597-5212  
F: 702/597-5214  
[www.baytek.com](http://www.baytek.com)

**BBJ Environmental Solutions**  
6802 Lakeview Center Drive, Suite 500  
Tampa, FL 33619  
P: 800/889-2251  
F: 813/623-4032  
[www.bbjeviro.com](http://www.bbjeviro.com)

**Benjamin Obdyke**  
400 Babylon Road, Suite A  
Horsham, PA 19044  
P: 215/672-7200  
F: 215/672-5204  
[www.benjaminobdyke.com](http://www.benjaminobdyke.com)

**BuildingGreen Inc.**  
122 Birge Street, Suite 30  
Brattleboro, VT 05301  
P: 802/257-7300  
F: 802/257-7304  
[www.buildinggreen.com](http://www.buildinggreen.com)

### C

**Camden Products LLC**  
106-A Enterprise Drive  
Elizabeth City, NC 27909  
P: 252/335-1768  
F: 252/331-6580  
[www.anti-growth.com](http://www.anti-growth.com)



**Carlisle Coating & Waterproofing**  
900 Hensley Lane  
Wylie, TX 75098  
P: 972/442-6545  
F: 972/442-0076  
[www.carlisle-ccw.com](http://www.carlisle-ccw.com)  
See our ad on page 42.

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**CertainTeed Corp.**  
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F: 610/341-7571  
[www.certainteed.com](http://www.certainteed.com)  
See our ad on page 9.

**Cold Jet**  
455 Wards Corner Road  
Loveland, OH 45140  
P: 800/337-9423  
F: 513/831-1209  
[www.coldjet.com](http://www.coldjet.com)

**Construction Dispute Resolution Services LLC**  
3600 Rodeo Lane, Suite B7  
Santa Fe, NM 87507  
P: 888/930-0011  
F: 505/474-9061  
[www.constructiondisputes-cdrs.com](http://www.constructiondisputes-cdrs.com)

**Controlled Release Technologies Inc.**  
2915 166th Avenue N  
Clearwater, FL 33760  
P: 727/581-8262  
F: 727/573-5344  
[www.cleanac.com](http://www.cleanac.com)

**Covalence Adhesives**  
25 Forge Parkway  
Franklin, MA 02038  
P: 508/918-1683  
F: 508/764-1905  
[www.covalenceadhesives.com](http://www.covalenceadhesives.com)

**Custom Building Products**  
13001 Seal Beach Boulevard  
Seal Beach, CA 90740  
P: 800/272-8786  
F: 562/598-4008  
[www.custombuildingproducts.com](http://www.custombuildingproducts.com)

**DAC Products Inc**  
625 Montroyal Road  
Rural Hall, NC 27045  
P: 336/969-9786  
F: 336/969-9695  
[www.dacproducts.com](http://www.dacproducts.com)

### D

**Detec Systems**  
1728 Shearwater Terrace  
Sidney, BC V8L 5L4  
P: 250/655-0911  
F: 250/655-1447  
[www.detecsystems.com](http://www.detecsystems.com)

Dynamic Air Quality Solutions  
P.O. Box 1258  
Princeton, NJ 08542  
P: 800/578-7873  
www.dynamicaqs.com

**E**

Easy Life Solutions  
6404 Manatee Avenue West, Suite N  
Bradenton, FL 34209  
P: 877/792-9788  
F: 941/798-9808  
www.dsr5.com

Edgetech I.G. Inc.  
800 Cochran Avenue  
Cambridge, OH 43725  
P: 800/233-4383  
F: 740/439-0121  
www.superspacer.com

EMSL Analytical Inc.  
107 Haddon Avenue  
Collingswood, NJ 08108  
P: 800/220-3675  
www.emsl.com

Envirocare Corp.  
260 Fordham Road  
Wilmington, MA 01887  
P: 978/658-0123  
F: 978/964-0444



**Environmental Education Foundation**  
724 East Iris Drive  
Gilbert, AZ 85296  
P: 480/659-9356  
F: 480/659-9456  
www.enviro-ed.org  
See our ad on page 39.

Environmental Microbiology  
Laboratory Inc.  
1150 Bayhill Drive, Suite 100  
San Bruno, CA 94066  
P: 866/888-6653  
www.emlab.com

Environmental Monitoring Systems  
164 Ashley Avenue  
Charleston, SC 29403  
P: 800/293-3003  
F: 866/724-5702  
www.emssales.net

Environmental Testing & Technology Inc.  
5431 Avenida Encinas, Suite F  
Carlsbad, CA 92008  
P: 800/811-5991  
F: 760/804-9433  
www.IAQsurveys.com

Extech Instruments  
285 Bear Hill Road  
Waltham, MA 02451-1064  
P: 781/890-7440  
F: 781/890-7864  
www.extech.com



**EZ Breathe**  
349 Highland Road East  
Macedonia, OH 44056  
P: 330/468-6500  
F: 330/468-6502  
www.ezbreathe.com  
See our ad on page 11.

**F**



**Fiberlock Technologies**  
150 Dascomb Road  
Andover, MA 01810  
P: 800/342-3755  
F: 978/475-6205  
www.fiberlock.com  
See our ad on page 5.

FLIR Systems Inc.  
25 Esquire Road  
North Billerica, MA 01862  
P: 978/901-8000  
F: 978/901-8532  
www.flir.com

**FLUKE**

**Fluke Corp.**  
P.O. Box 9090  
M/S 250E  
Everett, WA 98206-9090  
P: 425/347-6100  
F: 425/446-5116  
www.fluke.com  
See our ad on page 50.

Foster Specialty Construction Brands Inc.  
601 West Campus Drive, Suite C7  
Arlington Heights, IL 60004  
P: 800/231-9541  
F: 800/942-6856  
www.fosterproducts.com

Free From Mold  
7011 S. 19th Street  
Tacoma, WA 98466  
P: 253/565-6600  
F: 256/3-565-7265  
www.freefrommold.org

**G**



**G-P Gypsum**  
55 Park Place  
Atlanta, GA 30303  
P: 404/652-3031  
F: 404/230-7052  
www.gpgypsum.com  
See our ad on page 49.

GE Silicones - Construction  
Sealant Division  
9930 Kincey Avenue  
Huntersville, NC 28078  
P: 704/992-4121  
F: 704/992-4085  
www.gesilicones.com

Global Encasement Inc.  
110 Wall Street, 2nd Floor  
New York, NY 10005  
P: 212/809-3446  
F: 212/809-1868  
www.encasement.com

Global Moisture Detection Systems  
6824 St. Andrews Drive  
Mukilteo, WA 98275  
P: 425/349-3884  
F: 425/315-8141  
www.globalmoisture.com

Global Prevention Services  
7950 E. Acoma Drive, Suite 100  
Scottsdale, AZ 85260  
P: 877/465-3665  
F: 480/951-6565  
www.NoMold.com

**H**



**Humidex Atlantic**  
2421 Long Beach Road  
Oceanside, NY 11572  
P: 866/486-4339  
F: 516/204-8117  
www.humidexatlantic.com  
See our ad on page 41.

**I**

Indoor Environmental Response (IER)  
P.O. Box 3232  
Ramona, CA 92065  
P: 760/315-1274  
F: 760/787-9212

**J**

Jamsill Inc.  
P.O. Box 485  
Talent, OR 97540  
P: 541/488-7470  
F: 541/488-7472  
www.jamsill.com

**K**

Knauf Insulation  
One Knauf Drive  
Shelbyville, IN 46176  
P: 800/825-4434  
F: 317/398-3675  
www.KnaufUSA.com

**M**

Madewell Products Corp.  
7561-A Industrial Court  
Alpharetta, GA 30004  
P: 770/741-8199  
F: 770/475-8167  
www.madewell.com

Masonry Technology Inc.  
P.O. Box 214  
Cresco, IA 52136  
P: 800/879-3348  
F: 563/547-1113  
www.mtidry.com

McGill AirFlow LLC  
2400 Fairwood Ave  
Columbus, OH 43207-2700  
P: 614/443-5520  
F: 614/542-2620

Microban International Ltd.  
11515 Vanstory Drive, Suite 125  
Huntersville, NC 28078  
P: 704/766-2005  
F: 704/766-2006  
www.microban.com

MoldDog  
19 Marshall Street  
Safety Harbor, FL 34695  
P: 800/665-3364  
F: 727/791-4343  
www.mold-dog.com

Mortar Net  
541 S. Lake Street  
Gary, IN 46403  
P: 800/664-6638  
F: 219/939-3877  
mortarnet.com

Movin Cool/Denso Sales California Inc.  
3900 Via Oro Ave  
Long Beach, CA 90810  
P: 310/952-7955  
F: 310/835-8724  
www.movincool.com

*continued on page 36*



# 2007 Buyer's Guide continued

**N**

National Gypsum Co.  
2001 Rexford Road  
Charlotte, NC 28211  
P: 704/365-7300  
F: 704/365-7222  
www.nationalgypsum.com

Nisus Corp.  
100 Nisus Drive  
Rockford, TN 37853  
P: 800/264-0870  
F: 865/577-5825  
www.nisuscorp.com

**P**

Pactiv  
P: 800/241-4402  
F: 678/589-7320  
www.green-guard.com



Pemko Mfg. Co.  
P.O. Box 3780  
Ventura, CA 93006  
P: 805/535-2401  
F: 805/535-2419  
www.pemko.com  
See our ad on page 29.

PRO-LAB  
1675 N. Commerce Parkway  
Weston, FL 33326  
P: 800/427-0550  
F: 954/384-4838  
www.reliablelab.com



Protective Coatings Group LLC  
55887 Commonwealth Avenue  
Jacksonville, FL 32254  
P: 877/729-6653  
F: 904/378-8697  
www.4pcg.com  
See our ad on page 3.

Protecto Wrap  
1955 South Cherokee Street  
Denver, CO 80223  
P: 800/759-9727  
F: 303/777-9273  
www.prtotectowrap.com



Pure Air Control Services  
4911 Creekside Drive  
Clearwater, FL 33760  
P: 800/422-4873  
F: 727/572-5859  
www.pureaircontrols.com  
See our ad on page 39.

**Q**

Qwik Products  
200 Yellow Place  
Rockledge, FL 32955  
P: 321/631-3550

F: 321/631-3552  
www.qwik.com

**R**

Relle IAQ Solutions LLC  
23A Fifth Street  
Gretna, LA 70053  
P: 504/367-8972  
F: 504/367-7956  
www.relleinc.com

Rotronic Instrument Corp.  
160 E Main Street  
Huntington, NY 11743  
P: 631/427-3898  
F: 631/427-3902  
www.rotrotron-usa.com

RSTC Enterprises  
2219 Heimstead Road  
Eau Claire, WI 54703-4954  
P: 866/367-7782  
F: 715/830-9976  
www.commdeck.com

**S**

Sanair Technologies Laboratory  
1551 Oakbridge Drive, Suite B  
Powhatan, VA 23139  
P: 804/897-1177  
www.sanair.com



Sceptor Industries  
8301 State Line Road  
Kansas City, MO 64114  
P: 813/831-6511  
F: 813/831-6506  
www.sceptorindustries.com  
See our ad on page 37.

SEI Chemical  
19215 Parthenia Street  
Northridge, CA 91324  
P: 818/998-3538  
F: 818/998-5456  
www.seichemical.com



Siamons International Inc.  
36 Meteor Drive  
Toronto, ON M9W 1A4  
P: 416/213-0219  
F: 416/674-9300  
www.concrobium.com  
See our ad on page 13.

Sika Corp.  
30800 Stephenson Highway  
Madison Heights, MI 48071  
P: 248/307-2539  
F: 248/577-0810  
www.sikaindustry.com

Smart VENT Inc.  
450 Andbro Drive, Suite 2B  
Pittman, NJ 08071

P: 877/441-8368  
F: 856/612-5000  
www.smartvent.com

Sommer & Maca Industries Inc.  
5501 W. Ogden Avenue  
Cicero, IL 60804-3507  
P: 800/323-9200  
F: 708/863-5462  
www.somaca.com



Sostram Corp.  
300 Colonial Center Parkway  
Roswell, GA 30076  
P: 770/587-9807  
www.sostram.com  
See our ad on page 7.

Sporicidin International  
121 Congressional Lane  
Rockville, MD 20852  
P: 301/231-7700  
F: 301/231-8165  
www.sporicidin.com

Steril-Aire Inc.  
2840 N. Lima Street  
Burbank, CA 91504  
P: 818/565-1128  
F: 818/565-1129  
www.steril-aire.com



Sto Corp.  
3800 Camp Creek Road  
Building 1400, Suite 120  
Atlanta, GA 30331  
P: 800/221-2397  
F: 404/346-3119  
www.stocorp.com  
See our ad on page 1.

Synthetic Surfaces Inc.  
P.O. Box 241  
Scotch Plains, NJ 07076-0241  
P: 908/233-6803  
F: 908/233-6844  
www.nordot.com

**T**

ThermaPure Heat  
180 Canada Largo Road  
Ventura, CA 93001  
P: 800/375-7786  
F: 805/648-6999  
www.thermapure.com

Trace Analytical Laboratories Inc.  
2241 Black Creek Road  
Muskegon, MI 49444  
P: 231/773-5998  
F: 231/773-6537  
www.trace-labs.com

Tremco Inc. Industrial Products Div.  
2628 Pearl Road  
Beachwood, OH 44122  
P: 330/225-7430  
F: 330/225-7168  
www.tremcosealants.com

**U**

Ultrafab Inc.  
1050 Hook Road  
Farmington, NY 14425  
P: 585/924-2186  
F: 585/924-7680  
www.ultrafab.com

UltraViolet Devices Inc.  
26145 Technology Drive  
Valencia, CA 91355  
P: 661/295-8140  
F: 661/295-8350  
www.ultrav.com

**V**

Valcourt Exterior Building Services LC-NJ  
663 Pennsylvania Avenue  
Elizabeth, NJ 07201  
P: 908/965-3400  
F: 908/965-3401



Valeron Strength Films  
9505 Bamboo Road  
Houston, TX 77041  
P: 713/996-4200  
F: 713/939-0034  
www.valeronvortec.com  
See our ad on page C2.

**W**

Water Out Inc.  
8206-1200 Providence Road, #384  
Charlotte, NC 28270  
P: 704/771-9330  
F: 704/364-8829  
www.wateroutflashing.com

Westech Building Products  
5201 64th Avenue SE  
Calgary, AB T2C 4Z9  
P: 403/279-4497  
F: 403/279-4790  
www.napg.net

**Z**

ZINSSER Co. Inc.  
173 Belmont Drive  
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P: 732/652-2229  
F: 732/563-9774  
www.zinsser.com

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**EZ Breathe**  
Steril-Aire Inc.

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Global Encasement Inc.  
Knauf Insulation  
McGill Airflow LLC

#### **Driers and Dehumidifiers**

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**EZ Breathe**  
**Humidex Atlantic**  
Movin Cool/Denso Sales California Inc.

#### **Ventilation Systems**

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**EZ Breathe**  
Global Encasement Inc.  
**Humidex Atlantic**  
McGill Airflow LLC  
Smart VENT Inc.

### *Antimicrobial Coatings*

Camden Products LLC  
Foster Specialty Construction Brands Inc.  
Microban International Ltd.

#### **Architectural**

**Anabec Inc.**  
Envirocare Corp.  
Foster Specialty Construction Brands Inc.  
Global Encasement Inc.

#### **Disinfectants**

Advanced Remediation Solutions  
**Anabec Inc.**  
BBJ Environmental Solutions  
EMSL Analytical Inc.  
Envirocare Corp.  
Environmental Monitoring Systems  
**Fiberlock Technologies**  
Foster Specialty Construction Brands Inc.  
Global Encasement Inc.  
Nisus Corp.  
Qwik Products  
SEI Chemical  
Sporicidin International  
Steril-Aire Inc.  
ZINSSER Co. Inc.

#### **Fungicidal Protective**

Advanced Remediation Solutions  
**Anabec Inc.**

Controlled Release Technologies Inc.  
Envirocare Corp.  
Foster Specialty Construction Brands Inc.  
Global Encasement Inc.  
Nisus Corp.  
**Siamons International Inc.**  
**Sostram Corp.**  
Sporicidin International

#### **Mold and Mildew Cleaners**

Advanced Remediation Solutions  
**Anabec Inc.**  
BBJ Environmental Solutions  
EMSL Analytical Inc.  
Envirocare Corp.  
Environmental Monitoring Systems  
**Fiberlock Technologies**  
Global Encasement Inc.  
Global Prevention Services  
Nisus Corp.  
SEI Chemical  
**Siamons International Inc.**  
**Sostram Corp.**  
Sporicidin International  
Steril-Aire Inc.  
ZINSSER Co. Inc.

#### **Mold and Mildew Preventative**

Advanced Remediation Solutions  
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Camden Products LLC  
Detec Systems  
Dynamic Air Quality Solutions  
EMSL Analytical Inc.  
Envirocare Corp.  
**EZ Breathe**  
FLIR Systems Inc.  
Foster Specialty Construction Brands Inc.  
GE Silicones - Construction Sealant Division  
Global Encasement Inc.  
Global Prevention Services  
Nisus Corp.  
**Protective Coatings Group LLC**  
**Siamons International Inc.**  
**Sostram Corp.**  
Sporicidin International  
Synthetic Surfaces Inc.  
ZINSSER Co. Inc.

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Advanced Remediation Solutions  
**Anabec Inc.**  
BBJ Environmental Solutions  
Controlled Release Technologies Inc.  
Envirocare Corp.  
**Fiberlock Technologies**  
Foster Specialty Construction Brands Inc.  
McGill Airflow LLC  
Nisus Corp.  
Qwik Products  
SEI Chemical  
**Siamons International Inc.**

Sporicidin International  
ZINSSER Co. Inc.

### *Paints*

Envirocare Corp.  
**Fiberlock Technologies**  
Global Encasement Inc.  
**Protective Coatings Group LLC**  
Qwik Products  
SEI Chemical  
Valcourt Exterior Building Services LC-NJ  
ZINSSER Co. Inc.

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**Anabec Inc.**  
Envirocare Corp.  
**Fiberlock Technologies**  
Foster Specialty Construction Brands Inc.  
GE Silicones - Construction Sealant Division  
**Protective Coatings Group LLC**  
SEI Chemical  
Tremco Inc. Industrial Products Div.  
Valcourt Exterior Building Services LC-NJ  
ZINSSER Co. Inc.

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#### **Air sampler**

EMSL Analytical Inc.  
Environmental Microbiology Laboratory Inc.  
Environmental Monitoring Systems  
**Fluke Corp.**  
PRO-LAB  
Relle IAQ Solutions, LLC  
**Sceptor Industries**

#### **Datalogger**

EMSL Analytical Inc.  
Environmental Monitoring Systems  
Exttech Instruments  
**Fluke Corp.**  
PRO-LAB  
Qwik Products  
Relle IAQ Solutions, LLC  
Rotronic Instrument Corp.

#### **Infrared camera**

EMSL Analytical Inc.  
Environmental Monitoring Systems  
FLIR Systems Inc.  
**Fluke Corp.**  
PRO-LAB

#### **Microbial sampler**

EMSL Analytical Inc.  
Environmental Monitoring Systems  
PRO-LAB  
Relle IAQ Solutions, LLC  
**Sceptor Industries**

#### **Moisture/Humidity Meter**

DAC Products Inc.  
Detec Systems

EMSL Analytical Inc.  
Environmental Monitoring Systems  
Exttech Instruments  
FLIR Systems Inc.  
**Fluke Corp.**  
Global Moisture Detection Systems  
PRO-LAB  
Rotronic Instrument Corp.  
**Sceptor Industries**

#### **Moisture Sensor**

DAC Products Inc.  
Detec Systems  
EMSL Analytical Inc.  
Environmental Monitoring Systems  
FLIR Systems Inc.  
PRO-LAB  
Qwik Products  
Relle IAQ Solutions, LLC  
Rotronic Instrument Corp.

#### **Particle Counter**

EMSL Analytical Inc.  
Environmental Monitoring Systems  
**Fluke Corp.**  
PRO-LAB  
Relle IAQ Solutions, LLC  
**Sceptor Industries**

#### **Software**

EMSL Analytical Inc.  
Relle IAQ Solutions, LLC

### *Mold-Resistant Building Products*

Foster Specialty Construction Brands Inc.

#### **Ceilings**

Global Encasement Inc.  
**G-P Gypsum**

#### **Concrete**

Altus Group  
Global Encasement Inc.  
Madewell Products Corp.  
Valcourt Exterior Building Services LC-NJ

#### **Decking**

Valcourt Exterior Building Services LC-NJ

#### **Doors**

Jamsill Inc.  
Protecto Wrap  
Water Out Inc.

#### **Drainage Systems**

Benjamin Obdyke  
Jamsill Inc.  
Masonry Technology Inc.  
Mortar Net  
**Pemko Mfg. Co.**  
Protecto Wrap  
Valcourt Exterior Building Services LC-NJ

*continued on page 40*



# NO LAB DOES IT BETTER!

## 100% Accuracy (Bacteria / Fungi) 2005/2006 EMPAT Rounds

Tampa, FL



# EDLAB

Environmental Diagnostics Laboratory

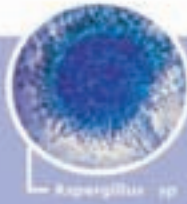
Mention this  
ad and receive a  
**10% discount**  
on Lab Services!



Fucus sp.



Dust Mite sp.



Aspergillus sp.



Penicillium sp.



Pollen sp.

## EDLab... The Industry Leader!

### ✓ Sensitive:

EDLab has standardized detection limits for environmental assays.

### ✓ Accurate:

EDLab samples are analyzed by a team of experienced Aerobiologists / Mycologists under a vigorous QA/QC Program. 100% EMPAT accuracy in 2005/2006.

### ✓ Fast:

EDLab offers affordable same day and 24-hour turn around times.

### ✓ Reliable:

EDLab reproducible data and on-time reporting is backed by our 100% satisfaction guarantee.

### ✓ Cost Effective:

EDLab Microbiology pricing is among the most cost-effective in the country.

### ✓ Accredited:

EDLab is accredited by the American Industrial Hygiene Association (AIHA), recognized by EMLAP, National Cooperation for Laboratory Accreditation (NACLA) and compliant with International Organization for Standardization ISO/IEC 17025.

### ✓ Innovative

**evalu-aire Pro** IAQ testing equipment designed for the practitioner allows you to qualitatively and quantitatively collect airborne contaminants, such as mold, pollen, fungal spores, fibers, dander and insect biodebris among others.

Ask for a free copy of the  
10-year Bioaerosol study  
presented at the AIHce.

HARRIS MARTIN  
PUBLISHING

Tampa, FL



# EDLAB

Environmental Diagnostics Laboratory

"Care for Health, Respect for the Environment"

Division of Pure Air Control Services

**Call Toll Free: 1-800-422-7873 ext. 303**



Contract Holder  
HQS-10F-04881



• Tampa, FL • West Palm Beach, FL • Atlanta, GA • Houston, TX • New Orleans, LA • Mobile, AL • Washington, DC

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For more information, visit [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter)

# MMM 08/06

## **Engineered Lumber**

**Arch Wood Protection**  
Free From Mold

## **Exterior Cladding**

Altus Group  
Sto Corp.

## **Flashing**

Advanced Building Products  
**Carlisle Coating & Waterproofing**  
Covalence Adhesives  
Jamsill Inc.  
Pactiv  
Protecto Wrap  
RSTC Enterprises  
Valcourt Exterior Building Services LC-NJ  
Water Out Inc.

## **Flooring**

Altus Group  
Global Encasement Inc.

## **Gutters and Water Removal Systems**

Jamsill Inc.  
Pemko Mfg. Co.

## **Gypsum Board**

Global Encasement Inc.  
G-P Gypsum  
National Gypsum Co.

## **Housewrap**

Pactiv  
Protecto Wrap  
**Valeron Strength Films**  
Water Out Inc.

## **Insulated Concrete Forms**

Anabec Inc.

## **Insulation**

Armaceil LLC  
**CertainTeed Corp.**  
Knauf Insulation  
McGill Airflow LLC  
Pactiv

## **Masonry**

Advanced Building Products  
Global Encasement Inc.  
Masonry Technology Inc.  
Valcourt Exterior Building Services LC-NJ

## **Roofing**

Global Encasement Inc.  
G-P Gypsum  
Protecto Wrap  
RSTC Enterprises  
Valcourt Exterior Building Services LC-NJ  
Water Out Inc.

## **Sills**

Jamsill Inc.  
**Pemko Mfg. Co.**  
Valcourt Exterior Building Services LC-NJ  
Water Out Inc.

## **Sealants**

**Anabec Inc.**  
Envirocare Corp.  
GE Silicones - Construction  
Sealant Division  
Valcourt Exterior Building Services LC-NJ

## **Structural Panels**

Altus Group  
APA - The Engineered Wood Association  
Free From Mold  
Valcourt Exterior Building Services LC-NJ

## **Underlayment**

Advanced Remediation Solutions  
Benjamin Obdyke  
**Carlisle Coating & Waterproofing**  
Covalence Adhesives  
Custom Building Products  
Free From Mold  
**G-P Gypsum**  
National Gypsum Co.  
Protecto Wrap

## **Vapor Control Products**

Advanced Remediation Solutions  
**Carlisle Coating & Waterproofing**  
Covalence Adhesives  
**EZ Breathe**  
Foster Specialty Construction Brands Inc.  
Masonry Technology Inc.

## **Vapor Barriers**

Advanced Remediation Solutions  
Aquafin Building Products  
**Carlisle Coating & Waterproofing**  
**CertainTeed Corp.**  
Covalence Adhesives  
Custom Building Products  
Protecto Wrap  
SEI Chemical

## **Wallcovering Systems**

ZINSSER Co. Inc.

## **Waterproofing**

Advanced Building Products  
Advanced Remediation Solutions  
**Carlisle Coating & Waterproofing**  
Covalence Adhesives  
Custom Building Products  
Envirocare Corp.  
**EZ Breathe**  
**Fiberlock Technologies**  
Foster Specialty Construction Brands Inc.  
Global Encasement Inc.  
Protecto Wrap

SEI Chemical  
Smart VENT Inc.  
**Sto Corp.**  
Water Out Inc.  
ZINSSER Co. Inc.

## **Windows**

Protecto Wrap  
Water Out Inc.

## **Window Components**

Edgetech I.G. Inc.  
Global Moisture Detection Systems  
Ultrafab Inc.  
Water Out Inc.

## **Wood Products**

APA - The Engineered Wood Association  
**Arch Wood Protection**  
Free From Mold  
Global Encasement Inc.  
Nisus Corp.

## **Wood Protection Products**

**Anabec Inc.**  
**Arch Wood Protection**  
Benjamin Obdyke  
Envirocare Corp.  
**EZ Breathe**  
Nisus Corp.  
**Protective Coatings Group LLC**

## **Remediation Products**

**Containment System**  
Environmental Monitoring Systems  
**Fiberlock Technologies**

## **Dessicants**

SEI Chemical

## **Resealing Equipment**

SEI Chemical

## **Safety Equipment**

EMSL Analytical Inc.  
Environmental Monitoring Systems  
Valcourt Exterior Building Services LC-NJ

## **Software**

Baytek  
Environmental Education Foundation

## **Ultraviolet System**

Advanced Distributor Products  
Dynamic Air Quality Solutions  
Steril-Aire Inc.  
UltraViolet Devices Inc.

## **Vacuums and Water Removal Equipment**

EMSL Analytical Inc.  
**EZ Breathe**  
Environmental Monitoring Systems

## **Services**

### **Arbitration**

Construction Dispute Resolution  
Services LLC

### **Associations**

APA - The Engineered Wood Association  
**Environmental Education Foundation**

### **Consultant**

Advanced Remediation Solutions  
**Anabec Inc.**  
Bailey Engineering Corp.  
Baytek  
Detec Systems  
Environmental Testing & Technology Inc.  
**EZ Breathe**  
MoldDog  
**Pure Air Control Services**  
Relle IAQ Solutions LLC  
Trace Analytical Laboratories

### **Construction Disputes**

Construction Dispute Resolution  
Services LLC

### **Education**

ACGIH  
Advanced Remediation Solutions  
**Anabec Inc.**  
APA - The Engineered Wood Association  
Detec Systems  
**Environmental Education Foundation**  
Environmental Microbiology  
Laboratory Inc.  
Environmental Testing & Technology Inc.  
Qwik Products  
ThermaPure Heat

### **Environmental Testing Services**

**Advanced Mold Diagnostics LLC**  
Environmental Testing & Technology Inc.  
**Pure Air Control Services**  
PRO-LAB  
Relle IAQ Solutions LLC  
Trace Analytical Laboratories

### **Expert Witness**

Construction Dispute Resolution  
Services LLC

### **Home/Mold Inspector**

**Advanced Mold Diagnostics LLC**  
Advanced Remediation Solutions  
Environmental Testing & Technology Inc.  
Indoor Environmental Response (IER)  
MoldDog  
**Pure Air Control Services**  
Relle IAQ Solutions LLC  
SEI Chemical

*continued on page 42*



# 2007 Buyer's Guide continued

## **Industrial Hygienist**

Environmental Testing & Technology Inc.  
**Pure Air Control Services**  
 Relle IAQ Solutions LLC  
 Trace Analytical Laboratories

## **Infrared Training Instructor**

Environmental Education Foundation

## **Laboratory Services**

EMSL Analytical Inc.  
 Environmental Microbiology  
 Laboratory Inc.

## **PRO-LAB**

### **Pure Air Control Services**

Rotronic Instrument Corp.  
 Sanair Technologies Laboratory  
 Trace Analytical Laboratories

## **Mediation**

Construction Dispute Resolution Services LLC

## **Moisture Control Services**

APA - The Engineered Wood Association  
 Detec Systems  
 Environmental Testing & Technology Inc.  
**EZ Breathe**  
**Humidex Atlantic**  
 Masonry Technology Inc.  
 ThermaPure Heat  
 Valcourt Exterior Building Services LC-NJ

## **Mold Remediation**

**Advanced Mold Diagnostics LLC**  
 Advanced Remediation Solutions  
 Global Prevention Services  
 Indoor Environmental Response (IER)  
**Pure Air Control Services**  
 Relle IAQ Solutions LLC  
 SEI Chemical  
 ThermaPure Heat  
 Valcourt Exterior Building Services LC-NJ

## **Mortar Collection Devices**

Masonry Technology Inc.  
 Mortar Net

## **Remediation Training Instructor**

Advanced Remediation Solutions  
**Anabec Inc.**  
**Environmental Education Foundation**  
 Environmental Testing & Technology Inc.  
 Indoor Environmental Response (IER)

## **Researcher**

Advanced Remediation Solutions  
 BuildingGreen Inc.  
 Detec Systems  
 Environmental Education Foundation

## **Structural Drying/ Dehumidification Services**

**EZ Breathe**  
 Indoor Environmental Response (IER)  
**Pure Air Control Services**

## **Water Damage Restoration Services**

Cold Jet  
 Indoor Environmental Response (IER)  
 ThermaPure Heat

## **Water Removal Systems**

Masonry Technology Inc.  
 Water Out Inc. 



**PATIENT ADMITTANCE FORM**

PERSONAL INFORMATION

LAST NAME: RAE FIRST NAME: JOE MR. Q

ADDRESS: 128 West Main St. Annapolis, MD 21401

DOB: 12/30/73 SSN: 123 456 789 PHONE: 301 234 567

AGE: 32 HEIGHT: 175 IN. GENDER: M ( ) F ( )

EMERGENCY CONTACT: Joe RAE PHONE: 301 234 567

ALLERGIES

penicillin

EXISTING MEDICAL CONDITIONS

diabetes

POTENTIAL RISKS

MOLD That may be in any wall of this hospital, due in part to a construction decision that was made 7 years ago!

**TREATMENT:** Carlisle Coatings & Waterproofing is the leading provider of air and vapor barriers for healthcare facilities in the country. Let one of our experts educate your firm on the theory behind, and proper specification of, air and vapor barriers today.

*Now, more than ever, good design is simply the best defense.*

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**CARLISLE**   
 Coatings & Waterproofing

For more information, visit [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter)



# **NEW** MOLD AWARENESS TRAINING AVAILABLE LIVE, INSTRUCTOR LED "ONLINE"



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

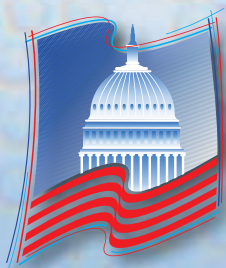
The EEF training, combined with ongoing support as an EEF member and NEW O&M plan are now being used by many major insurance carriers to meet certain underwriting requirements to obtain IAQ-related insurance.

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

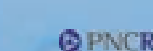
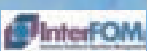
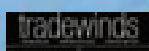
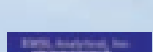
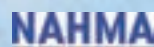
**ENVIRONMENTAL EDUCATION FOUNDATION**

**WWW.ENVIRO-ED.ORG 888-212-7211 INFO@ENVIRO-ED.ORG**

## **ADVISORY GROUP MEMBERS INCLUDE:**



**Environmental  
Education  
Foundation**



PNC REAL ESTATE FINANCE



## COATINGS

### Product Information Now Available at Mold-Ram.Com



MOLD-AM™, Roswell, Ga.-based Sostram Corp.'s new EPA-registered product for preventing surface mold and mildew, now has its own website at [www.mold-ram.com](http://www.mold-ram.com). The website offers product information and includes zip code access to MOLD-AM distributors and applicators.

MOLD-AM contains the active ingredient chlorothalonil, a contact fungicide, and is an easy-to-apply, sprayable product registered for use on wood, wallboard, concrete and masonry block construction materials. It is suitable for use during

new construction or to appropriate areas of existing structures and can be tank-mixed with borate products used for termite control and wood decay.

➔ [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter)

### Foster® Introduces New Defense Against Mold

Foster of Arlington Heights, Ill., has introduced Clear Defense™ 40-55™. Formulated with EPA-registered additives, the Clear Defense coating defends against the growth and re-growth of microbes on its surface. It exhibits zero mold growth when tested under the severe environmental conditions of test method ASTM D5590, according to information from the company.



The formulation of Clear Defense includes a durable acrylic polymer and fungistatic agents. The acrylic polymer forms a hard film over a variety of surfaces. Clear Defense can be applied using a brush, sprayer or roller. The coating dries in one hour. The mar-resistant, satin finish coating resists dirt and does not yellow or blush from sunlight and water exposure. The coating is also UV-, water- and dirt-resistant.

➔ [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter)

## SILLS AND FLASHING

### CCW Sticks to Masonry

Carlisle Coatings and Waterproofing (CCW) of Wylie, Texas, has introduced Flexphalt™ TWF for moisture protection in diverse wall flashing applications, especially masonry through-wall flashing.

The 40-mil flashing membrane consists of an 8-mil multi-layered polymeric film over 32 mils of rubberized asphalt adhesive. The product's 8-mil film is dimensionally stable and resistant to tearing and perforation, according to the company. The self-adhesive Flexphalt TWF offers ease of application, inspection and repair; while the rubberized asphalt seals around fasteners and penetrations.

It is also available with a low temperature adhesive formula, which enables easy installation throughout the winter season. The flexible membrane is available in four widths.



➔ [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter)



## HOUSEWRAP AND BARRIERS

### Fortifiber® Introduces WeatherSmart™

Fortifiber Building Systems Group™ of Reno, Nev., has introduced WeatherSmart, a polymeric weather-resistive barrier. As part of a complete moisture control system, WeatherSmart offers builders a warranted solution that the company says works in every climate and behind virtually every exterior cladding.



WeatherSmart employs a high-strength nonwoven substrate and a monolithic non-perforated coating of smart polymers. WeatherSmart's "smart" polymer design eliminates the need for perforations, so it is surfactant resistant. The result, according to information from the company, is a housewrap that delivers balanced moisture control in any weather condition. Its construction also helps protect against the elements and provides a reliable air infiltration barrier, while remaining durable and UV stable. In addition, WeatherSmart is backed by the FortiShield™ 10-year warranty.

➡ [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter)

### Delta®-Dry's Dimple Design Lets Moisture Out

Delta-Dry from Cosella-Dörken of Beamsville, Ontario, is an impermeable membrane made of a special high-density polyethylene that provides two-sided drainage through its dimple and groove design. The structured membrane provides a protective weather-resistive barrier with complete capillary break for residential and commercial building structures. It protects the building from water intrusion behind the exterior cladding by draining it back out to the exterior. Delta-Dry allows water vapor, driven from the interior to the exterior, to escape through the air space between exterior sheathing board

## INSULATION

### Allowing Moisture to Escape Wall Cavities

DryRight™ fiberglass insulation by CertainTeed Corp. of Valley Forge, Pa., is faced with MemBrain™ film to help building professionals control moisture within wall cavities. The company says the combination of fiberglass insulation faced with the breathable MemBrain film reduces the risk of mold and mildew growth when installed properly.

The film's molecular-scale pores open under moist, humid conditions during the cooling season to allow moisture vapor to pass. When humidity is low inside during the heating season, the smart film's molecular-scale pores close to block vapor transmission. The permance of DryRight is 1 perm or less at normal conditions and increases to greater than 30 perms when the humidity nears 90 percent.

➡ [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter)

and membrane, while minimizing the potential for condensation that could cause damage in the wall cavity.

Due to the double-sided dimple structure of the membrane, breathability is provided on both sides of the product, allowing moisture to escape from behind siding, brick veneer or any other approved exterior cladding. At the same time, Delta-Dry impedes solar-



driven moisture towards the interior of the structure as it occurs with conventional stucco, brick veneer or any other absorptive cladding material, according to information from the company.

➡ [www.moldmag.com/infocenter](http://www.moldmag.com/infocenter) 



# MARKETPLACE

## SERVICES



Training  
Investigations  
Solutions  
Legal Support  
**800-811-5991**  
IAQsurveys.com

## CONSULTING SERVICES

### Wagner • Hohns • Inglis, Inc. CONSULTANTS TO THE CONSTRUCTION INDUSTRY

**BUILDING MOISTURE DAMAGE • CONSTRUCTION CLAIMS  
SURETY INVESTIGATIONS • DISPUTE RESOLUTION  
DESIGN & CONSTRUCTION DEFECTS • CPM SCHEDULING**

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TEL: 609/261-0100 • FAX: 609/261-8584    TEL: 813/962-1618 • FAX: 813/963-1229

**www.whi-inc.com**

### TIERRA CONSULTING GROUP, INC.

ENVIRONMENTAL ENGINEERING & CONSULTING



Mold Consultation, Indoor Air  
Quality Inspections, Remediation  
Protocols. Infrared Diagnostics,  
Litigation Support

**"A BUILDING & MECHANICAL SYSTEMS  
APPROACH TO IAQ"**

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FAX (954) 946-6556

LICENSED ENGINEERING, ASBESTOS, LEAD-BASED  
PAINT & GEOLOGICAL BUSINESS

## SALES & MARKETING

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**V**endors  
**P**articipants

To fulfill nation wide water  
damage restoration obligation.  
Quality restoration vendors  
needed to mitigate water, fire  
and mold. Independent  
owners and operators only,  
no franchises.

Fax or email company and  
contact information to  
Mr. D. Harrison at  
352-735-2594  
dharrison@qvpvender.com

- Company and Name
- Contact number and Fax
- Address
- Service area by county

## MOISTURE CONTROL SERVICES

### Wireless Moisture Transmitters



Ultra low power. 10 year battery life.  
Place in walls of roofs. Visit our website  
at [www.globalmoisture.com](http://www.globalmoisture.com) or call  
425/418-4688.

To place an ad, e-mail  
[jmulligan@moldmag.com](mailto:jmulligan@moldmag.com)  
or call Janeen Mulligan  
at 540/720-5584 ext. 112

## CALIBRATION SERVICES

**ACCREDITED HUMIDITY CALIBRATION**  
ISO / IEC 17025  
**NIST TRACEABLE STANDARDS**

Relative Humidity..... 0.5% to 99%  
Dew / Frost Point..... -98 °C to 78 °C  
Volume Ratio, V (PPM)..... 0.1 to 250,000

 **Thunder  
Scientific  
Corporation**  Lab Code 200582-0

623 Wyoming S.E. Albuquerque NM 87123  
1-800-872-7728  
[www.thunderscientific.com](http://www.thunderscientific.com)  
[sales@thunderscientific.com](mailto:sales@thunderscientific.com)

Page	Company	Phone	Fax	Web Address
13	Advanced Mold Diagnostics	800/642-8305	610/642-3528	www.advancedmolddog.com
16a	Anabec Inc.	800/369-8463	716/759-7829	www.anabec.com
15	Arch Wood Protection	866/736-7366	770/801-1990	www.frameguardwood.com
42	Carlisle Coatings & Waterproofing Inc.	800/527-7092	972/442-0076	www.carlisle-ccw.com
9	Certainteed Corp.	800/233-8990	610/341-7940	www.certainteed.com
11	EZ Breathe	888/212-7211	330/468-3231	www.ezbreathe.com
43	Environmental Education Foundation	480/659-9356	480/659-9456	www.enviro-ed.org
5	Fiberlock Technologies	800/342-3755	978/475-6205	www.fiberlock.com
50	Fluke Corp.	800/760-4523	763/551-0038	www.infraredsolutions.com
49	G-P Gypsum Corp.	800/284-5347	404/230-5624	www.gp.com
41	Humidex Atlantic	866/486-4339	516/204-8118	www.humidexatlantic.com
29	Pemko	800/283-9988	800/283-4050	www.pemko.com
3	Protective Coatings Group	877/729-6653	904/378-8697	www.4pcg.com
39	Pureair Control Services Inc.	800/422-7873	727-572-5859	www.pureaircontrols.com
37	Sceptor Industries	816/360-3895	816/931-2451	www.sceptorindustries.com
13	Siamons International	866/811-4148	416/674-9300	www.concrobium.com
7	Sostram Corp.	770/587-9807	770/587-4437	www.mold-ram.com
1	Sto Corp.	800/221-2397	404/346-3119	www.stocorp.com
C2	Valeron Strength Films	800/825-3766	713/254-2338	www.valeronvortec.com



## Calendar

# 2006-2007

**December 3-7, 2006**  
**2006 Consumer Specialty Products Association Annual Meeting**  
 Marriott Harbor Beach Resort.  
 Fort Lauderdale, Fla.  
 Sponsored by the Consumer Specialty Products Association.  
 Contact: Ann Wheeler at awheeler@cspa.org or call 202/872-8110.

## 2007

**January 16-20, 2007**  
**Insights 2007**  
 Hyatt Regency Hill Resort and Spa.  
 San Antonio, Texas.  
 Sponsored by Disaster Kleenup International (DKI).  
 Contact: DKI at 630/350-3000.

**January 27-31, 2007**  
**ASHRAE Winter Meeting**  
 Adam's Mark Hotel.  
 Dallas, Texas.  
 Sponsored by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).  
 Contact: Judy Marshall at jmarshall@ashrae.org or call 404/636-8400.

**January 29-31, 2007**  
**AHR Expo**  
 Dallas Convention Center.  
 Dallas, Texas.  
 Co-sponsored by ASHRAE and the Air-Conditioning and Refrigeration Institute.  
 Contact: AHR Expo at 301/694-5243.

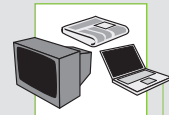
**February 7-10, 2007**  
**International Builders Show**  
 Orange County Convention Center.  
 Orlando, Fla.  
 Sponsored by the National Association of Home Builders (NAHB).  
 Contact: NAHB at 202/266-8109.

**February 11-14, 2007**  
**AAMA 70th Annual Meeting**  
 Marriott Marco Island.  
 Marco Island, Fla.  
 Sponsored by the American Architectural Manufacturers Association (AAMA).  
 Contact: AAMA at 847/303-5664.

**February 24-March 3, 2007**  
**Advanced Water Damage Strategies Training Cruise**  
 Carnival's Triumph.  
 Leaves from Miami.  
 Sponsored by Textile Consultants Inc.  
 Contact: Textile Consultants at 303/289-1034.

**March 5-8, 2007**  
**2007 NADCA Annual Meeting and Exposition**  
 Gaylord Opryland Resort and Convention Center.  
 Nashville.  
 Sponsored by the National Air Duct Cleaners Association (NADCA).  
 Contact: NADCA at 202/737-2926 or info@nadca.com.

**March 13-16, 2007**  
**ASCR's 62nd Annual Solutions Convention and Exhibition**  
 Wyndham Palace Resort and Spa.  
 Orlando, Fla.  
 Sponsored by the Association of Specialists in Cleaning and Restoration (ASCR).  
 Contact: ASCR at 800/272-7012 or sharons@ascr.org.



# School House Mold

Every day, newspapers across the country report new or continuing mold problems in their local schools. Reports cover the reactions of angry parents and teachers, and occasionally a preventive strike from school boards alerting the district as to the course of action in their mold problem. Many of the stories run together with the same, unfortunate course of events. Others, such as the stories below taken from the consumer press, stand out as somewhat unusual.

## Students Trade Moldy Dorm for Room Service

Move-in day in college is about forming new friendships, gaining independence and ordering room service—at least that was the case for some students at Austin Peay State University (APSU) in Clarksville, Tenn. More than 200 students moving into two of the dormitories were relocated to local hotels and other dorms while a mold problem was addressed, according to a report from WTVF in Nashville.

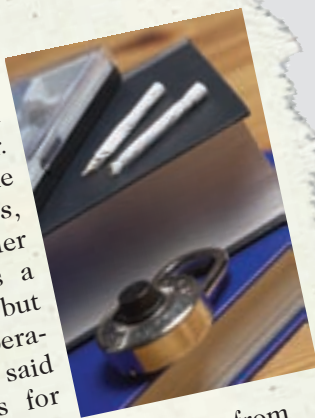
The APSU director of housing told the paper the problem resulted from excessive moisture in the air conditioning systems. After more than a month of repairs, including the installation of new drywall, students returned to their dormitories.



## A New Need For Weed

In March, a New Paltz, N.Y., teenager was caught selling marijuana—to an elementary school teacher. According to an article by the *Associated Press*, the 38-year-old teacher admitted that it was a “stupid” thing to do, but was done out of desperation. The teacher said that the drug was for pain relief due to an immune disorder allegedly resulting from exposure to mold in the school.

The teacher was charged with a misdemeanor and resigned from her teaching job.



## Hospitalized Teachers Victims of Rotten Fruit

Two teachers at a Sarasota County, Fla., school were hospitalized in January as a result of five mold-covered oranges, according to an article from the *Herald Tribune*.

The offending fruit had slipped between a table and refrigerator in the school’s speech therapy area. After an undetermined amount of time later, staff members complained of headaches and nausea due to the smell and two teachers were ultimately sent to the hospital.

When neither custodians nor the fire department could discover the source of the odor, the county Health Department was brought in for air quality tests. According to the article, the investigators discovered the rotting oranges and determined that the odor wasn’t toxic.

The teachers were treated at the hospital and then released.





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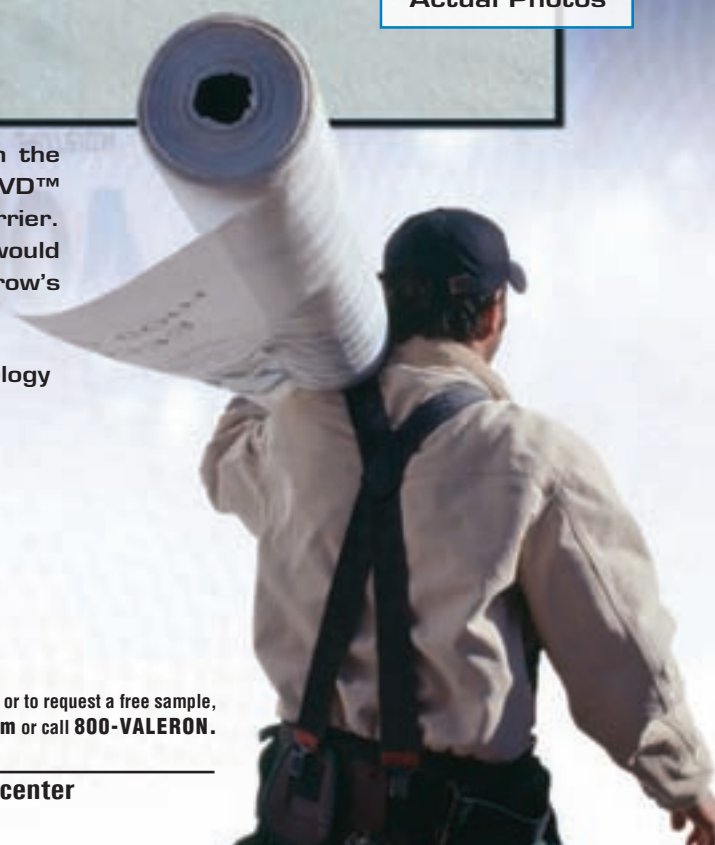
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