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The Magazine for Moisture Prevention and Remediation
January-February 2007
Volume 4 | Issue 1

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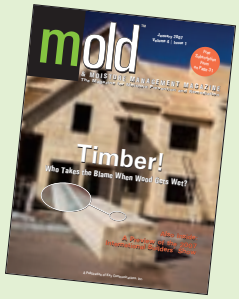

Experts advise that lumber on the jobsite should be raised above ground four inches, so it isn't in contact with moist earth, and should be protected with some kind of tarp. For more advice, see the article on page 16.

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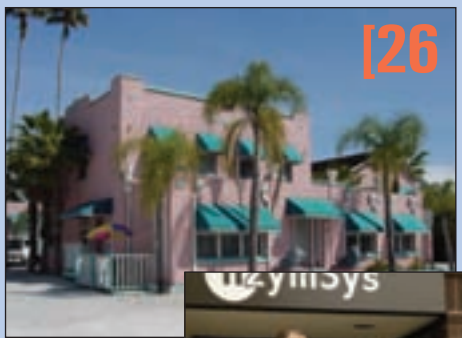

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Gearing Up For Another Great Year

It felt odd to open my new daily organizer to start planning for the new year—back in September '06. But now, at the start of 2007, I'm just excited (and overwhelmed!) with plans for all of the article ideas I'm hoping to squeeze into next year's six issues.

For some of these articles, I'm hoping to follow up on the topics that I began to learn about in the year behind us, and to answer the new questions that inevitably come up in the search for information. For example, in researching how distributors and builders handle moldy lumber *(see The Mold Blame Game on page 16)*, contributing editor Samantha Carpenter found that sawmills were unwilling to talk about what happens when their customers call with complaints about mold on their lumber. During her research, she also found no evidence of specific guidelines for the supply chain to follow when it comes to caring for lumber and keeping it dry.

This left Samantha with a question that she and I are hoping **Moldmag** readers can help answer. Would builders benefit from a guideline on what to do upon receiving lumber covered with mold or wood decay fungi? Would building professionals implement a checklist for the supply chain, from sawmills all the way to framing contractors and even homeowners, to track lumber conditions and problems? Would users continue to leave lumber sitting on wet ground, exposed to the weather, for months at a time and frame homes with mold-spotted lumber, until the lawsuits began?

How many builders would be interested in developing such a guideline or checklist for the industry? We'd like to hear input on this topic from everyone involved—builders, lumberyards, mold remediators and others—on how useful they feel a set guidance would be.

It's your input that makes this magazine a tool that you can use, so please write us at mheadley@moldmag.com or call 540/720-5584 x 114 with your input on this topic, and others. And if you find yourself at the upcoming AHR Expo January 29-31, 2007, in Dallas, come say hello and share your ideas—we'll be at Booth 4778. If you find your way to Booth S12620 at the International Builders' Show February 7-10 in Orlando, Fla., we know you'll have to plenty to say on the topic of moldy lumber, so come see us with ideas and comments, as well as your suggestions for making this publication even better. My favorite part of these shows always is meeting you and hearing your stories.

Speaking of good stories, remediators, we've got a special request for you: we're hoping to showcase your stories in the next issue's Remediation Focus. Has there been one specific tool that's proved invaluable to your mold remediation work? We want to know. We're also looking for stories about your most unusual jobsite complications—whether it was a challenging client or a head-scratcher of a problem, we hope you'll share your story (and your solutions) with us here at **Moldmag**, and with your colleagues. I'm looking forward to hearing from you.

And many thanks for all of your hard work!

Megan Headley
Editor, **Moldmag**

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Heads Up

Controlling Moisture Through Proper Skylight Installation

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

Some consumers and contractors still harbor concerns about moisture control with respect to skylights. These perceptions may be outdated, however, as today's skylights offer maximum resistance to water penetration, especially when proper installation techniques are followed.

The first step is to design a skylight to forestall leakage. This is accomplished by designs that meet the requirements established by AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights*. The standard establishes recognized performance requirements for complete glass or plastic factory-glazed skylights for both residential and commercial construction. Types of units covered include fixed or operable, flush mounted, curb mounted, self flashing units (integral curb) and inset mounted.

Laboratory performance tests, conducted per referenced ASTM procedures, are carried out on a unit mounted in a manner simulating actual field installation. Performance requirements are specified for framing and cladding materials (aluminum, vinyl, fiberglass, steel and wood), glass or plastic glazing, fasteners and anchors, hardware, weatherstrip, finishes and insect screens. Critical to leak-resistant design, performance requirements are also specified for glazing gaskets, seals, drainage systems and retainers. In particular, gaskets must be shown to be resistant to weathering and capable of maintaining a water-resistant seal between the glass and the surrounding frame.

Installation is the Key

Even the best-designed skylight can leak if installed improperly. Accordingly, although manufacturers' installation instructions and local codes remain the primary guideline, AAMA has published AAMA 1607-04, *Installation Guidelines for Unit Skylights*. This document covers both curb-mounted and self-flashing applications on both low slope or flat roofs (those with a pitch [slope] less than 3 on 12 or 15 degrees) and high pitch roofs (those with a slope greater than 75 degrees).

Proper installation begins with a properly-prepared opening.

Curb-Mounted Skylights

A curb-mounted skylight, installed on a pre-manufactured or site-built curb, requires a properly squared-off curb with all members in the same plane. All members must also be of adequate height to set the skylight at the proper code required height above the finished roof (typically 4 inches). For low-slope roofs, snow, slush or rainwater buildup may require a 6-inch or greater curb height. On particularly low-pitched or flat roofs, tapered curbs may be required to provide the minimum slope at which glass manufacturers will warrant their products. On particularly steep slopes, a higher curb than the minimum required by code may be advisable. If there is a large expanse of steep roof above the skylight, installation of a diverter may be required as a means to prevent excessive amounts of water and/or sliding snow from accumulating above the skylight.

After the curb is attached to the roof properly, the roofing material should be terminated and/or flashed properly. A ⅜-inch diameter bead of flexible sealant (such as a silicone, polyurethane, butyl-based sealant or closed cell tape) should be applied to the top of the curb, but not within ½-inch of the outside edge. Note that pre-assembled unit skylights do not require additional sealants and using them could block weep systems and create leaks.

When possible, the skylight should be positioned with the short side running perpendicular to the roof slope to avoid larger areas where water and/or snow may accumulate above the unit. Watch for any marks indicating which side of the unit is to be located down slope for proper drainage.

Self-Flashing Skylights

Again, the roof opening should be prepared per the skylight manufacturer's dimensions. Note that most self-flashing unit skylight dimensions are given as inside curb dimensions, or the actual size of the roof opening.

After applying a bead of sealant, the unit should be attached to the roof deck through the flange of the curb or mounting bracket. Note that fasteners should be placed at the appropriate spacing to resist the design uplift wind pressures for the locality. Some high wind or hurricane prone areas of the country may require special attachments.

Remember, a positive seal of the roofing materials to the skylight curb is most critical in creating a watertight installation. Care should also be taken that roofing material is not installed so that it blocks the weep system of the skylight.

What If There Is A Leak?

A simple water test can be used to check an installed skylight for leaks. Starting at the lowest point of intersection between the skylight curb and the roof and working upward, flood the roof around the skylight or run water at the base of the skylight for about 15 to 20 minutes. While roof leaks are often slow to show up, skylight leaks will generally be evident almost immediately.

Position a spotter inside just below the skylight so the source of any leak can be specifically detected. If a leak occurs below the skylight frame on a curb mount skylight, or below the mounting flange of a self-flashing unit, the leak is most likely associated with the roof and/or installation of the skylight. If the leak occurs from the condensate gutter and/or between the skylight frame and its pre-attached curb then, the skylight itself is likely at fault.

If the skylight is believed to be leaking, first check to see if the weep holes are free to drain. If this requires taking the unit apart, confer with the skylight manufacturer.

Another cause of leakage could be negative pressure inside the building, which occurs when the HVAC system removes more air from inside than can be replaced through normal openings. If the negative pressure is high enough, it can actually prevent water infiltrating the skylight from draining out through the weep system as well as pull water in through the weep system, causing the skylight to leak over its condensation gutter. If this proves to be the cause, reduce the negative pressure by providing alternative sources of air infiltration or adjusting the air exchange of the HVAC system.

Manufacturers' installation instructions and local codes should be the primary guidelines for installing skylights correctly. AAMA 1607-04 is also available for additional information.

Finally, a common cause of water penetration is condensation, which can occur under certain combinations of temperature and humidity. Double glazing will usually reduce the potential for condensation but may not totally eliminate it. For example, condensation is more likely in new construction as the curing of construction materials produces excess moisture. Some other options to reduce or control condensation include:

- Lower the interior humidity level;
- Increase interior air movement around the skylight;
- Use skylights with thermal barriers; and
- Be sure that the skylight frame is sealed to the top of the curb to reduce air infiltration.

Note that plastic, unlike glass, is permeable and will allow water vapor to pass through the material. This can result in the formation of condensation between double or triple-glazed domes under certain conditions.

As with all fenestration, installed performance can only be achieved when proper methods are employed and industry consensus standards are observed. m

For more information, contact Larry Livermore at 540/877-9957 or llivermore@aamanet.org.

The One Percent Rule

How Successful Flashing Can Keep Your Project Dry

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

The commonly quoted "One Percent Rule" states that 99 percent of the sources of rainwater damage are found at 1 percent of the building envelope. While there may be a touch of hyperbole to this, most building professionals would agree that leakage problems at exterior walls typically are found at changes in plane and changes in material, such as door and window perimeters and wall intersections with decks.

In other words, rainwater infiltration usually occurs at the transitions between the work carried out by different trades. In most cases, successful long-term weatherproofing of these transitions requires careful design and installation of flashing crafted from corrosion-resistant metal or flexible waterproof membranes.

The 2003 International Building Code (IBC) includes the following guidance for flashing exterior walls:

- "Flashing shall be installed at the perimeters of exterior door and window assemblies, exterior wall intersections with roofs, chimneys, porches, decks, balconies and similar projects and at built-in gutters and similar locations where moisture could enter the wall."
- "Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting trim."
- "Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect it to the exterior."

These instructions are an example of performance language. The IBC authors do not prescribe any specific flashing design or material or any standard installation practice; instead, the IBC simply mandates that a project's designer and builders have a shared responsibility to design, craft and install all flashing necessary to keep the exterior walls dry.

> "In practice, virtually every insured party involved in the design and construction of a failed building gets blamed, sooner or later, during the ensuing construction defects litigation pro cess. "

Example of a Flashing No-No

A majority of construction defects litigation cases arise from simple lack of attention to the One Percent Rule. Consider the photograph above, which depicts a transition between hardboard lap siding and white-painted wood trimboards that form an aesthetic "bellyband" at the floor line between the first and second stories of this multifamily residential building. Note the metal Z-flashing (also painted white) that was intended to weatherproof this change in plane (and change in material).

Is this metal Z-flashing "installed in such a manner so as to prevent moisture from entering the wall or to redirect it to the exterior?" The answer, of course, is "No."

The Z-flashing is sloped toward the building interior, causing water to collect against the water-sensitive hardboard siding, which is improperly installed in direct contact with the metal flashing. Further, the corner overlap joint between the two pieces of Z-metal

Is this metal flashing installed in such a manner so as to prevent moisture from entering the wall or to redirect it to the exterior?

is not sealed, allowing water infiltration into the wall assembly.

Then, in an unsuccessful attempt to correct this leakage problem, an unknown party later smeared a bead of caulk along the base of the hardboard siding. The caulk, however, also blocks the intended exit route for any incidental moisture (from a source located higher up the wall) that may have reached the building paper installed behind the siding. Further, the topical application of caulk at the top of the metal flashing joint quickly failed, allowing continued leakage at the corner.

The Blame Game

Now, let's assume that, in addition to localized siding damage, inspectors also find moldy gypsum sheathing and structural decay behind the bottom piece of siding and the bellyband boards. Which party (or parties) should be held responsible for correcting the deficient flashing and repairing the resulting mold and moisture damage?

In practice, virtually every insured party involved in the design and construction of a failed building gets blamed, sooner or later, during the ensuing construction defects litigation process. Sometimes, such widespread apportionment of

shared responsibility for a construction defect is appropriate; however, it also can simply represent an unprincipled effort by one or more parties to hide their culpability behind a smokescreen of half-truths and outright misrepresentations. For example, in this case the sheetmetal installer may argue any or all of the following positions:

- I installed the metal flashing with proper outward slope but the flashing later was pushed flat by the siding installer. (*It's the sider's fault!*)
- The hardboard siding soaked up water like a sponge, damaging the building paper and causing mold growth on the gypsum sheathing. (*It's partly the manufacturer's fault!*)
- The framer should have provided outward slope in the horizontal wood trimboard under the flashing. (*It's the framer's fault!*)
- The architect did not supply a satisfactory detail for how to flash this transition. (*It's the designer's fault!*)
- It was the project's maintenance personnel who applied the caulk that trapped water within the wall. (*It's partly the owner's fault!*)
- I just did exactly what the general contractor paid me to do. (*It's the GC's fault!*)
- *Everyone who ever touched this wall is at fault, except me!*

Without debating the merits or legitimacy of any of these claims, they do help explain the most serious problem plaguing designers and builders throughout North America: skyrocketing insurance premiums due to the high costs of prosecuting and defending a growing number of mold and moisture damage claims that in most cases still can be traced back to an insufficient focus on the One Percent Rule.

The ultimate solution to this insurance crisis is education. To that end, the many industry organizations and manufacturers who, in the past five years, have established free websites that detail proper flashing practice should be commended. An excellent example is the *Build a Better Home*® program (www.buildabetterhome.org) established by APA—The Engineered Wood Association, which provides an extensive series of flashing details and basic construction guidelines for foundations, walls and roofs.

Until all participants in a building's construction—from the owner to the designer to the builder to the superintendent to the foreman to the skilled laborer—truly recognize the importance of proper flashing of the building envelope, increasingly costly mold and moisture damage claims will continue to threaten the viability and diversity of our home-building industry.

COMPANY NEWS

American Mold Guard Expands

American Mold Guard Inc. (AMG) of Irvine, Calif., a provider of mold prevention services to the residential real estate construction industry, has added a dedicated Midwest division. According to information provided by the company, the expansion leverages the company's established relationships with a growing group of clients throughout Texas, who are served by the company's Houston offices.

As a result of the expansion, the company has hired Chad D. Clayton to serve as regional vice president of the Midwest division. Clayton's responsibilities will include developing and supporting an increasing amount of business in major metropolitan areas, including San Antonio, Austin and Dallas, as well as growing markets in Oklahoma and Kansas City.

The company has also been expanding its presence in California and along the Gulf Coast. Three new service centers were opened in San Jose, Modesto and Visalia, Calif., in response to a surge in new construction and rebuilding programs that emphasize mold prevention in homes. The new locations give AMG a total of nine service centers in California. Service centers were also added in St. Bernard Parish, La., and Biloxi, Miss., to meet demand for mold prevention, which the company says has risen rapidly since the company opened its first location in New Orleans shortly after Katrina.

FrameGuard® Gets GREENGUARD Certification

Arch Wood Protection Inc. of Smyrna, Ga., has announced that its FrameGuard® mold-resistant wood has met the emissions standards of GREENGUARD Environmental Institute (GEI) and is now GREENGUARD Indoor Air Quality Certified®.

The GREENGUARD certification is specified in several green building guidelines, including the National Association of Home Builders and the U.S. Green Building Council's LEED® program. According to information from Arch Wood Protection, GEI coordinated rigorous testing of FrameGuard wood products through a third-party laboratory and determined that it is within GREENGUARD's approved standard for low chemical emissions.

www.frameguardwood.com

FrameGuard® wood from Arch Wood Protection is typically used in residential construction where mold growth and associated health and liability issues have generated concern among homeowners and builders. The wood is now GREENGUARD Indoor Air Quality Certified®.

MERGERS AND ACQUISITIONS

Fortifiber Acquires Firstline Facility

Fortifiber Corp. of Incline Village, Nev., has completed its purchase of the operations and assets of Firstline Corp.'s Valdosta, Ga., facility.

The Valdosta plant represents a strategic addition to Fortifiber's manufacturing locations, expanding the company's product and service capabilities in the Southeastern United States. When combined with its Los Angeles, Fernley, Nev., and Attleboro, Mass., manufacturing facilities, the company will be able to leverage a national manufacturing footprint from which to supply its comprehensive line of moisture control systems to the building products marketplace.

The Firstline portfolio of building products is intended to strengthen Fortifiber's market leadership in providing innovative and cost-effective moisture control solutions. Its housewrap, manufactured housing, roofing and concrete underslab product lines complement Fortifiber's existing product families.

WEBSITES

Experts Launch Hurricane Construction Website

A consortium of manufacturers, building science educators and government agencies has launched the Hurricane Construction Network, a new web-based information portal for the building and design community. Accessible at www.hurricaneconstruction.net, the website is part of the Hurricane-Resistant Construction Project, a four-part program designed to educate homebuilders, remodelers and building code officials in Gulf and Atlantic coastal states on hurricane- and flood-resistant construction codes and best building practices.

By combining expert-staffed, real-time help centers with online information and video tutorials, the site delivers instant answers to professionals who have questions on a wide range of subjects. Website visitors can also communicate with each other through blogs led by industry professionals. The five blogs available include:

- Hurricane and Flood Resistant Buildings, hosted by building science consultant Steve Easley;
- Mold and IAQ, hosted by industrial hygienist and indoor air quality specialist Susan Raterman;
- Warm and Moist Climate Construction, hosted by the Building Codes Assistance Project;
- Building Codes and Beyond, hosted by the Institute for Business & Home Safety's Jeff Burton; and
- Restore, Remodel and Rebuild, hosted by builder and journalist Ted Cushman.

"Construction professionals who are building or rebuilding homes in the hurricane-prone areas of the eastern U.S., will find this website to be a valuable resource," said Lawrence Shapiro, residential business director of Grace Specialty Building Materials, a sponsor of the network. "It's a one-stop, simple to use knowledge bank that's packed with current and time-saving content on the best building practices and code information required to build weather-resistant homes." m

Katrina Rulings Pour In

On August 15, 2006, a federal judge ruled in favor of Nationwide Mutual Insurance Co. in the first Hurricane Katrina insurance coverage case to go to trial. Following an eight-day bench trial, Senior Judge L.T. Senter, Jr. of the U.S. District Court for the Southern District of Mississippi upheld the validity and enforceability of the water damage exclusion in Nationwide's homeowner's insurance policy, agreeing with Nationwide that it was not obligated to pay for any storm surge damage to the property of Pascagoula residents Paul and Julie Leonard.

The Leonards sought more than $160,000 in monetary damages and, in a request that could have had far-reaching implications for Nationwide and the insurance industry, also urged the modification of their homeowner's policy to invalidate Nationwide's standard exclusion for water damage. Judge Senter rejected all but $1,228 of the Leonards' damage claims and denied their request that Nationwide's policy should be "reformed" so as to provide coverage for all hurricane-related damage. The court also rejected the Leonards' claims that Nationwide's agent had made misrepresentations regarding the scope of the Leonards' insurance coverage.

In his opinion, Judge Senter ruled that Nationwide "has met the burden of proving, by a preponderance of the evidence, that [almost all of the] damage to the Leonards' property was caused by water and waterborne materials" excluded from coverage by their policy. In addition, the judge noted, the Leonards "knew [separate] flood insurance was available and optional" but did not purchase it.

However, in November the insurance company appealed the verdict. According to an article from the *Sun Herald*, Senter did find two exclusions in the policy ambiguous and unenforceable: one says that wind damage is not covered when water contributes, and the other says that wind damage is not covered if weather conditions combine with water to cause the loss.

"This reading of the policy would mean that an insured whose dwelling lost its roof in high winds and at the same time suffered an incursion of even an inch of water could recover nothing under his Nationwide policy," Senter ruled.

Nationwide's appeal is intended to overturn these exclusions in Senter's ruling.

In Louisiana, U.S. District Judge Stanwood Duval Jr., ruled in November that flood exclusions in several homeowner insurance policies were ambiguous.

In Vanderbrook et al., v. State Farm Fire & Casualty Co., et al., the

In Mississippi's first Hurricane Katrina insurance coverage case to go to trial, Nationwide Mutual Insurance Co.'s water damage exclusion has been found "valid and enforceable." Meanwhile, in Louisiana a judge has ruled that flood exclusions in several homeowner insurance policies were ambiguous.

plaintiffs maintained that water damage inflicted on their homes was not the result of flooding but, rather, the result of negligent maintenance of the levees. As such, the plaintiffs alleged that the flood exclusions in their policies did not apply to water damage in their homes following Hurricane Katrina.

According to court documents, the plaintiffs argued that "the 'flooding' was not caused by the overtopping of the levees or by rainwater filling the city with surface water … Rather, they maintain it was the negligence of Orleans Levee District (OLD) that caused the canal walls to collapse."

The plaintiffs also contend that because the third-party negligence of OLD is the "efficient, proximate cause" of the flooding of their homes, their policies should provide coverage.

The defendants maintained that "all water damage caused by the canal breach is excluded from coverage as these policies exclude coverage for water damage resulting from a 'flood' and that clearly the inundation of the City of New Orleans caused by the failure of its levees was a 'flood.'"

The court documents state that any "ambiguous contractual provision" is to be construed against the insurer and in favor of the insured.

Duval ruled, "It is the considered opinion of this Court that because the policies are all-risk, and because 'flood' has numerous definitions, it reasonably could be limited to natural occurrences." The ruling further states, "Under the principles of Louisiana law, the Court is constrained to find the [policy] language ambiguous … Once this finding is made, the Court is further constrained to interpret it against the insurer."

State Farm and Hartford Policy were found exempt from the ruling due to the clarity of their exclusions.

Meanwhile, U.S. Magistrate Judge Robert Walker, of the Southern District of Mississippi, has ruled that homeowners suing insurance companies for denying their Hurricane Katrina-related claims must file lawsuits individually instead of joining in a mass action against insurers, according to an article by the *Associated Press*.

According to the ruling, "Although plaintiffs each held basically the same standard homeowner's policy, each insurance contract is a separate transaction."

Attorney Richard Scruggs, whose firm is suing several insurers on behalf of several hundred policyholders, had asked Walker to consolidate his clients' cases against State Farm Fire and Casualty Co., Nationwide Mutual Insurance Co. and Allstate Property and Casualty Insurance Co., according to the article.

"I think the judge is optimistic if he thinks the likes of State Farm are going to care whether they get eight to 10 adverse judgments a year, in any amount," Scruggs told the *Associated Press*.

Senter has also ruled against allowing multiple cases against State Farm to be combined as a class action suit.

Insurance Pays for Home Destroyed by Wind and Waves

The Florida First District Court of Appeals has ruled that Florida Farm Bureau Casualty Insurance is responsible for paying for wind and flood damage that destroyed a Santa Rosa County, Fla., couple's home during Hurricane Ivan in 2004.

The ruling is significant for homeowners with claims resulting from 2004 hurricanes. However, the case involves the state's valued policy law (VPL), which was changed in 2005 to prevent similar claims in the future.

On October 16, 2004, Hurricane Ivan left Eugene and Debra Cox's home a total loss. The couple filed a claim with their insurance company, Florida Farm Bureau, for the limits of their policy coverage. Although Farm Bureau acknowledged the $65,000 dwelling was a total loss, it argued that wind damage caused less than 50 percent of the total damage. Since flood damage is excluded from the company's policy, it agreed to pay damages attributable to the wind, totaling $11,583.93. The Coxes counterclaimed for policy limits under Florida's VPL, which states that "when there is a total loss of a structure that is insured 'as to a covered peril … the insurer's liability, if any,' is in the amount for which the property was insured."

In 2005, the Florida Legislature amended its VPL. Effective June 2005, it no longer states "that upon a total loss resulting from a covered peril 'the insurer's liability, if any, under the policy for such total loss' shall be the policy limits," according to court documents. The new languages provides that "the insurer's liability under the policy for such total loss, if caused by a covered peril," shall be the policy limits.

In a 2-1 decision, the appellate court upheld Santa Rosa County Circuit Judge Ron Swanson's August 2005 rule that the insurance company was responsible for paying the full value of the destroyed home.

American Federation of Teachers Addresses Mold in the Nation's Schools

The National Coalition for Healthier Schools Annual Meeting, hosted by the American Federation of Teachers (AFT), took place December 6, 2006, the day after AFT released a report on the unhealthy state of many of the nation's school buildings. Mold was under much discussion at the meeting, as well as within the AFT report *Building Minds, Minding Buildings—Turning Crumbling Schools into Environments for Learning*.

In fact, the meeting opened with a two-hour session entitled *Mold: Protecting the Health and Safety of Children and Employees*, during which education professionals discussed the questions about mold they frequently hear.

John Bonnage, CMR, a health and safety specialist with the American Federation of State, County and Municipal Employees (AFSCME) International, opened the session with a presentation about what causes mold, how and where it grows and basic remediation protocols.

"The first thing they teach you in the mold remediation class is to identify the source of the moisture," Bonnage instructed the panel of education association professionals.

Denise Bowles, also of AFSCME and the panel moderator, stressed that the primary problem is the moisture, since that can lead to problems other than mold, such as bacteria and insects.

"We try to get away from it's a mold problem—to me it's a dampness and water problem," said Bowles.

Having heard that mold can cause serious health effects in sensitive individuals, Steve Boese, the Healthy Schools Network's (HSN) New York State director, asked, "Is there a common sense profile for who is sensitive?"

"I take the position everybody's sensitive," said Bowles. She noted that if a teacher or student can walk into their classroom and smell mold, then the environment is likely not healthy for anyone.

Another panel member asked if sampling was the appropriate course to take if mold was suspected.

"We tell all of our folks we don't want to box ourselves in with sampling," said Bowles. She said that if results do not show unusually high levels of mold, then administrators can use that as proof that there is nothing wrong with the building. But Bowles stressed the importance of investigating the entire environment for issues other than mold.

One solution panel members reached for improving conditions in schools was improving the budget for school maintenance staff.

"That is the biggest part of our problem—cutting school budgets," said Bowles. "When they cut budgets, maintenance is the first to get cut."

Bowles also offered suggestions of the type of training AFT would like to see required of maintenance staff, including: education about mold awareness; basic understanding of HVAC systems; education on children's health and their own health, with regards to exposure to mold and chemicals for cleaning; some basic knowledge on mold remediation (based on the New York guidelines) and a level of literacy.

"The key will be giving this [training] to people within the school district," said Darryl Alexander, health and safety expert with AFT.

Bowles also recommended that maintenance staff and administrators be trained how to handle complaints.

"You can address it when it's a $5 problem rather than a $10 million problem," she said.

With regards to those "$10 million problems," Alexander spoke about mold-related problems in schools

AFT recommends improving budgets for school maintenance, as well as training maintenance staff on issues such as mold awareness.

affected by Hurricane Katrina.

"A lot of those schools in Louisiana and Mississippi were not remediated properly," she said.

She explained that once schools were reopened after the hurricane, many teachers in those areas were given gloves and told to go into the schools and clean—and were encouraged to save as much as possible, including porous, water-damaged books and teaching manuals.

"So now we're seeing epidemics of asthma, allergies—and administrators trying to keep the lid on this," said Alexander.

Alexander also said that little has been done to track the health of students in those damaged schools—partly because there is no real health department there now. She recommended setting up asthma surveys on students, not just along the Gulf Coast but in all schools, to track the effect of indoor air quality on students.

"[We should be] setting up some asthma surveillance centers and using that as an indicator for some of these issues like mold," she said.

The panel indicated that they felt that support from the medical industry to claims about mold's health effects has been lacking. They pointed specifically to a study published in February 2006 in the *Journal of Allergy and Clinical Immunology*, called "The Medical Effects of Mold Exposure," that said that "evidence does not support the contention that mycotoxins-mediated disease (mycotoxicosis) occurs through inhalation in nonoccupational settings" (*see May-July 2006* ***Moldmag***). The journal later published a correction that stated that two of the study's authors had failed to disclose their roles as insurance company defense witnesses in mold exposure liability lawsuits.

According to information from AFT, many teachers in areas affected by Hurricane Katrina were encouraged to save water-damaged books.

Panel members agreed that more hard data and research is needed to convince administrators and health care providers of the importance of good indoor air quality.

In the way of collecting data, AFT has published the responses of more than 1,000 school employees to a survey on the physical environment at their schools. The *Building Minds, Minding Buildings* report features observations and quotes from teachers and school employees in urban areas, small towns and rural communities alike.

According to the report, an increase in cases of asthma may be linked to poor air quality, student concentration may be affected by temperature extremes and student and staff absenteeism may be due to an unhealthy "built environment."

These also were the conclusions of a study conducted by the U.S. Department of Education under the No Child Left Behind (NCLB) law, according to information from AFT. The study found "the overall evidence strongly suggests that poor environments in schools due primarily to effects of indoor pollutants adversely influence the health, performance and attendance of students." According to AFT, the agency shelved the study's results and took no action.

The AFT supports federal action, including:

- Passage of America's Better Classroom Act, which would provide $24.8 billion in school modernization bonds for renovation and construction of new schools;
- Passage of the 21st Century High Performing School Facilities Act, which would authorize grants to school districts for modernization and construction; and
- Creation of a "Learning Environment Index" under NCLB that would require schools and districts to make improvements in the teaching and learning environment.

The AFT also recommends improvements at the state and local levels, including:

- Stronger standards for school building and systems inspections;
- Clear guidelines for school renovation practices;
- Comprehensive pest control and maintenance plans; and
- Increased involvement of union members in the planning of new school construction and renovation.

www.aft.org

Building Professionals Point Fingers and Search for Solutions in the

MOLD BLAME GAME

by **Samantha Carpenter**, contributing editor for Moldmag.

Juries have awarded millions of dollars in mold cases. Plaintiffs have received awards as high as $32 million. With mold-related lawsuits on the rise, lumber dealers, builders and framing contractors need to properly store their lumber, so they aren't accused of being part of the mold problem.

According to information from the Southern Pine Council of Kenner, La., "Molds are fungi; unbiquitous organisms that (under proper conditions) can grow on organic matter. Surface molds, which can come from a variety of sources including airborne spores, feed off the sugars and starches readily available in wood."

It's not surprising to find mold on lumber in lumberyards or jobsites, but then the question becomes, "Who is to blame?"

Advice for Lumberyards

Richard Kleiner, director for treated markets, Southern Pine Council, advises dealers to order lumber that is paper wrapped to protect it from the elements and to cover lumber during the transportation process, on the yard and at the jobsite.

"At the dealer yard, ideally, we'd like to see the lumber stored under roof when possible," Kleiner says. He clarifies that under roof means some sort of metal roof—somewhere the lumber isn't going to get direct moisture or direct sunlight.

Susan Raterman, a certified industrial hygienist and president of The Raterman Group Ltd. of Chicago, gives similar advice.

"There are some simple steps that can be taken to prevent mold growth on lumber during storage and construction, starting at the lumberyard. Wood and wood products should be stored under cover in a dry location. Product should be inspected before it leaves the yard to assure that moldy lumber is not being sent to the customer. To reduce claims, prudent lumber dealers have a program of mold inspection and cleaning prior to delivery of lumber," Raterman says.

"We suggest dealers and distributors use moisture meters to spot-check their product when it's delivered. It's the option of the dealer to return the lumber (speaking of Southern yellow pine) if it is over 19 percent moisture content," Kleiner says.

When the lumber is delivered to the jobsite, Kleiner says the lumber pack should be raised above ground four inches, so the lumber isn't in contact with moist earth. He also says it should be protected with some kind of material like a tarp, but something that is breathable.

The Status Quo

Some lumberyards, dealers and distributors do store their lumber as Kleiner advises. Dale Byrd, store manager for Thomas Lumber of Winter Park, Fla., says his company keeps its lumber inside.

"Usually the only time we get mold is on lumber returned from the jobsite for credit."

To help keep its lumber mold-free, Pete Vrendenburgh, president of Vrendenburgh Lumber Co. of Beardstown, Ill., says his company lathes its lumber only five layers deep.

Donald Kearney, owner of the building contractor company Topflight Services of Parsippany, N.J., says he does two things.

"One is to store as little as possible. Inventory is lost cash flow or deferred cash flow; both of which are detrimental to profitability," he says. "The second is to store whatever lumber I have in a climate-controlled area. I use a basement area which is heated (to about 60 degrees) in the winter and dehumidified in the summer, so mold is not a problem."

John Halleland is president of Story City Building Products of Story City, Iowa. His company stores most of its lumber inside or on full pallets that are paper wrapped and under a roof overhang.

On the jobsite, contractors should use lumber and enclose the structure as quickly as possible to minimize exposure to the elements.

He says the mill from which he buys his lumber wraps it before shipping, and covering his lumber adds about $7 per 1,000 board feet to the cost of the lumber.

"I think the most important thing is to buy the lumber dried to 19 percent or less and to keep it protected from the weather," says Halleland. "Very humid locations make mold a much more serious problem than what we have in the Midwest. Buying lumber 'green' or not dried is an invitation for problems."

Panel Concepts Inc. in Mio, Mich., also stores its lumber inside or covered outside. President John Gascho says employees check the moisture content of lumber upon arrival and make sure it is at 10 to 15 percent. Sometimes the company will dry the lumber when it arrives from the sawmills.

Treating the Lumber

Some lumberyards, dealers and distributors not only cover their lumber, but they also treat their lumber with mold-resistant preventatives.

Santosh Patel, managing director of Stonehenge Building Group, says, "Although we try and cover our lumber in the best fashion we can, there are many factors related to the weather that we cannot control. We like to treat our lumber with a boric treatment after we are under roof."

Patel also says that covering the lumber with a plastic tarp only takes a few minutes and the cost is minimal, unless "you are continuously covering your lumber—then it's not worth it."

Giving lumber a boric treatment isn't the only possible way to limit mold growth.

There are many products on the market that are available.

Scott Hoffman is business manager for interior protection systems for Arch Wood Protection.

"Arch Wood's FrameGuard covers not just your studs for framing a wall, but also your panel goods and oriented strand board (OSB) … You can basically take a standard house framing package with any material and apply the FrameGuard coating to that and get it to the jobsite. It allows us to process the material quickly," he says.

He explains that FrameGuard is a coating containing a blend of anti-mold chemicals and borate technology that was developed specifically to address mold issues on wood products going into residential construction, although it also carries over to multi-family and commercial construction.

Hoffman says when the treated material arrives at the jobsite, it is protected from the start.

"More and more lumberyards are running into mold issues. They can process the materials at our treating plants before they sell it, if they find out what items are big movers, like 2-by-4 studs or OSB," Hoffman says, adding that his company can also put Arch's treating equipment into its dealer yard and process material as needed.

According to Eric Green, president of Siamons International, Concrobium has been available in the United States for use on lumber for about six months. The product is designed for mold prevention as well as remediation.

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How to Store Lumber Outside

Whether at the mill, distribution center or retail outlet, air flow and protection from wetting are key factors in the lumberyard layout, according to the Western Wood Products Association's Online Technical Guide (www.wwpa.org/techguide). A large volume of air should circulate through the yard freely to help evaporate and move moisture from the lumber. Lumber dealers should make certain the yard is open, with no trees or buildings blocking the air flow. Weeds and other vegetation should be removed because they can harbor mold spores.

Good water drainage is equally important. Standing water can add to the yard's humidity, which increases the possibility of mold and stain. Paved surfaces provide a barrier to moisture vapor movement out of the soil. Proper site grading can reduce the chance of water pooling in the lumberyard and may lead to faster evaporation of surface water.

Providing air space under lumber piles allows cool moist air to move downward and away from the piles. The supporting stringers should be sturdy, level and high enough to allow air circulation.

In more arid climates such as the Southwest, where drying may occur quickly, lumber piles can be oriented so prevailing winds travel perpendicular to the main alleys to slow drying of rows further downwind.

When lumber is placed on stickers, the stickers should be aligned vertically with one another and with the foundation stringers. Otherwise, sagging can occur, causing the lumber to bow or have a "belly." Also, avoid stacking piles to excessive heights because it can add weight that crushes the lumber at the bearing points and causes the wood to kink. Some stickers should be placed as near the ends as possible to reduce checking and splitting.

Solid-stacked lumber is often stored in packaged units banded with tie straps for easier forklift handling. Units should be separated by spacers, aligned with the supporting beams to prevent sagging.

Storing lumber in sheds under a permanent roof offers good protection by keeping the material dry and bright. Material with a moisture content greater than 15 percent can be stored in an open shed. Lumber with a moisture content at or below 15 percent should be stored in closed sheds for added protection.

Closed, unheated sheds are often used for storing kiln or air dried lumber. The protection provided can help maintain the low moisture content in the wood gained by seasoning. Closed heated sheds are often reserved for the higher grades of lumber used for interior work. Such lumber products need particular care because of their required lower moisture content (less than 15 percent).

"It's unique because it's entirely natural—it's an all natural mold-resistant and mold-eliminating product," he says. "When you spray mold with our product on lumber, it physically encapsulates the mold spores, and the film dries … into an antimicrobial shield that actually crushes the spores and contains them. While the stain may not be eliminated, that mold is dead and won't grow, and the lumber won't get moldy again."

Yes, We've Seen It

Even with numerous products available designed to prevent mold on lumber—and more importantly, growing awareness that mold could cause a problem for the builder, or the homeowner, down the road—it is still not unusual to see dark spots growing on lumber sitting on a jobsite or framing a house.

"In my experience it is not uncommon to find some mold growth or dark staining on new lumber and wood products in the majority of construction sites," says Raterman. "I have been involved in some projects where a homebuyer will walk the construction site, discover moldy lumber and refuse to move forward with the purchase until the wood is replaced or the mold is remediated. In other cases the used moldy lumber has resulted in seven-figure remediation and rebuilding costs. Responsibility for remedial action often falls on the lumber dealer."

But what are lumber dealers, contractors and builders to do when they receive moldy lumber from their suppliers?

Patel says that his company usually sends bad wood back, which tends to upset the lumberyards.

"My company has no tolerance for mold," says Kenneth Kellams, purchasing manager for FBI Buildings Inc. of Remington, Ind. "I have a plan and policy in place with my supply chain, truss plant and yard. Mold is rejected immediately upon inspection of every unit that is unloaded. It is removed from my yard in two weeks, and this is part of my vendor agreement."

"If I get a moldy shipment from a supplier, it goes back. I'm not spending my time or money to repair a problem that someone else has caused," says Kearney.

James Price, president and owner of Price Construction in Beaverdam, Va., says that he sees moldy lumber all the time.

"If you have wood that's moldy, visibly moldy that is, then, yes, at some point you let it dry out as much as you can, and once you're 'under roof,' you spray it with bleach in a garden sprayer and kill it, then let it dry completely," he says.

A Perfect World

In a perfect world, all lumberyards would check lumber for moisture content when delivered, they would cover their lumber in their yards, they would cover their lumber during delivery and at the jobsite, and builders and

contractors would keep the lumber covered and out of the elements.

"What you have to remember is—you're not shipping things to a grocery store, in a conditioned vehicle and into a perfectly conditioned space," says Price. "Sure, you get lumber delivered to a jobsite that's wet, or it gets wet once it's on the jobsite, but what are you going to do? Tell builders 'You can't use this wood until the ground moisture level is below blank and the humidity levels are below blank and the wood has completely dried out?' You just can't hold up the construction process like that."

Stacking lumber too high can add weight that crushes the lumber at the bearing points and causes wood to kink.

Kleiner concurs with Price. "You should use the lumber and enclose the structure as quickly as possible to minimize exposure. There is a phenomenon called blue stain, which some consumers think is mold [but isn't]. Both mold and blue stain affect the color of wood, but neither have an affect on the strength or durability of the lumber," he says.

Prices says even if lumber companies were to deliver lumber in heated and cooled containers, it's still going to get exposed to the elements on a jobsite.

"You would have to keep it in a conditioned space all the way up to the time you use it, but even then, you don't start under roof and, more often than not, it's going to rain at some point. If nothing more, condensation from the air is going to gather on it," he says.

Raterman says the best advice she can offer lumber dealers to reduce their exposure to liabilities surrounding mold is to develop a written mold and moisture control plan, train their staff and put the plan into action.

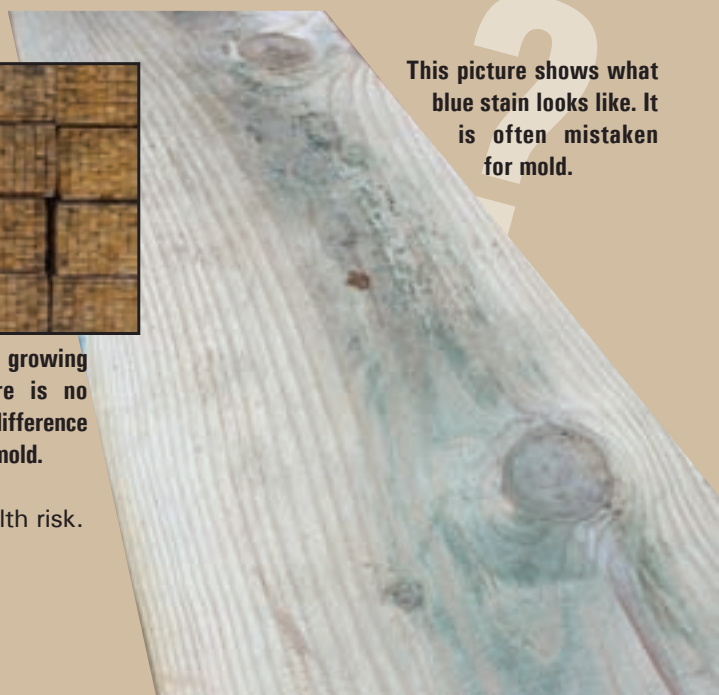
"The plan should address proper storage of wood products, quality control inspection procedures, how to detect mold, how to remove mold, when to get expert advice and what to do when moldy lumber is mistakenly distributed to customers," she says. "Secondly, educate your partners—the builders. Not all mold problems in a building are caused by moldy lumber and the challenge of controlling moisture does not begin or end with just using dry materials." m

What is Blue Stain?

Blue stain is not mold. It's a sap stain and is a bluish or grayish black discoloration of the sapwood caused by the growth of certain dark-colored fungi on the surface and interior of the wood, according to information from the Southern Pine Council. Blue stain can occur under the same conditions that favor the growth of other fungi.

With some molds and the lesser fungus stains, there is no clear-cut way to differentiate between the two. In general, the difference between mold and stain is made primarily on the basis of the depth of discoloration. Unlike mold fungus, typical sap stain or blue stain fungus penetrates deeply into the sapwood and cannot be removed by surfacing or chemical cleaners.

This lumber has mold growing on it, but often, there is no clear-cut way to tell the difference between blue stain and mold.



This picture shows what blue stain looks like. It is often mistaken for mold.

Under Southern Pine Inspection Bureau grading rules, stain and discoloration due to exposure to the elements, are characteristics allowed on Southern Pine lumber. Stain is an appearance characteristic only and is allowed in varying degrees in all lumber grades. The Bureau says it does not affect the lumber strength or utility, nor does it pose any health risk.

visit www.southernpine.com/mold.shtml.

THE BUILDERS ARE BACK IN TOWN

A Preview of the 2007 International Builders' Show

Exhibit Hall HOURS
WEDNESDAY, FEBRUARY 7, 2007
9:30 a.m. - 5:00 p.m.
THURSDAY, FEBRUARY 8, 2007
9:30 a.m. - 5:00 p.m.
FRIDAY, FEBRUARY 9, 2007
9:30 a.m. - 5:00 p.m.
SATURDAY, FEBRUARY 10, 2007
9:00 a.m. - 3:00 p.m.

More than 100,000 housing professionals are expected to descend on Orlando, Fla., for the 2007 International Builders' Show (IBS). Hosted by the National Association of Home Builders (NAHB), the trade show and exhibition will be held at the Orange County Convention Center, February 7-10.

The 2007 IBS will boast a new-product showcase covering more than one million net square feet, with a record 1,800 exhibitors displaying the latest products, services, designs and technologies available to the home building community.

If you've never been to IBS before, you're probably starting to imagine just how easy it is to get lost among the aisles. Don't worry, we've got you covered. Based on information submitted by exhibitors, we've planned a route that will help you make a beeline straight for the latest moisture control and mold prevention products on the market. Be sure to visit **Moldmag** in **Booth S12620**.

The Home Slicker® 10 Plus Typar® from Benjamin Obdyke (Booth S10351) is a combined rainscreen component and housewrap.

Sto Guard® building wrap keeps the Sto Powerwall NexT stucco, from Sto Corp. (Booth S10997), safe from moisture intrusion.

Can't make it to the show? No problem! Our preview will walk you through some of the moisture control products that will be exhibited--and you can be sure we'll include information on new products discovered at IBS in future issues.

Getting a Sense of the South Hall

Many building professionals will start their IBS trek through the exhibits in the South Hall of the Convention Center. It's in this hall where the grand opening ceremonies will start at 10:30 a.m. Wednesday morning. Journalist and former TV anchor of ABC's *Nightline*, Ted Koppel, will deliver the keynote address, "Insight Spanning the Decades."

As the speech ends and the crowd begins to filter out, you might wander toward **Booth S10177** to visit **Siamons International Inc.** of Toronto. The company will be displaying its Concrobium Mold Control™ antimicrobial. According to information from the company, the EPA-registered product dries on surfaces to create an invisible antimicrobial shield that inhibits and prevents mold and eliminates musty odors. The company says the product can be used during construction projects to make building materials mold-resistant.

Scan the next aisle, and continue on to **Booth S10351** to learn about the new combined rainscreen component and housewrap product from **Benjamin Obdyke** of Horsham, Pa. Home Slicker® 10 Plus Typar® was designed to provide an optimum method of sidewall construction in geographical areas that experience excessive moisture, high temperatures and humidity.

"The products that we're featuring at the show provide drainage and air flow behind the siding and the cladding materials," says Melissa Grimes, marketing communications manager of Benjamin Obdyke. "They really help create that air space in rainscreen wall assemblies."

A few aisles over in **Booth S10535**, **Protective Coatings Group** of Jacksonville, Fla., will be offering information on its newest coatings: Hi-Build Masonry Block Filler™ and Pro-Clean 101™.

Hi-Build Masonry Filler is a heavy-bodied, latex mold- and mildew-resistant filler designed for use on above-grade masonry, in both exterior and interior applications. The acrylic resin and pigments formulated into Hi-Build Masonry Filler will fill voids and cracks in masonry, eliminating areas vulnerable to mold growth through reduced moisture intrusion. ProClean101 is a specialty product designed to aid in cleaning areas with fungal growth. The company says this proprietary cleaner technology is safe, effective and resistant to future mold growth on its coated surface.

"Providing solutions that reduce mold concerns is our passion and products like High Build and Pro Clean compliment our award-winning FortiCel and other PCG coating solutions," says Lenny Abbott, chief executive officer of PCG.

Learn about other mold prevention coating solutions from **Sostram Corp.** of Roswell, Ga., in **Booth S10561**. The company's EPA-registered Mold-Ram surface mold and mildew prevention product can be applied during construction or to existing structures. It contains the active ingredient chlorothalonil, a contact fungicide, and offers tank-mix flexibility when mixed with borate products used for termite control and wood decay.

Company representatives suggest several key areas where builders might want to add this mold prevention protection: all wood surfaces, wall and partition bottom plates in contact with concrete, surfaces of exterior wall sheathing, masonry surfaces such as basement and foundation walls, open or closed crawlspaces and non air-conditioned areas such as garages and attics.

MOLD-RAM is applied by licensed pest control professionals or certified mold remediators using a sprayer or paintbrush. If desired, a spray dye indicator or permanent dye can be added to the solution to track the spray pattern.

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Flir Systems Inc. (Booth S10585) says its B-Series of infrared cameras is a non-invasive way of finding moisture intrusion in buildings.

Nisus Corp. (Booth S10745) offers its whole-house Bora-Care with Mold-Care to prevent mold, decay fungi and wood-destroying insects.

THE BUILDERS ARE BACK IN TOWN

Mold-Related SEMINARS

When your feet start aching from crossing the exhibit hall, take some time out for these seminars with solutions to mold and moisture problems.

WEDNESDAY, FEBRUARY 7, 2007
1:30 - 2:30 p.m.
New Approaches to Solving Water Intrusion Problems
3:30 - 5:00 p.m.
Significant Issues in Mold and Related Construction Defect Claims

THURSDAY, FEBRUARY 8, 2007
9:00 - 10:00 a.m.
Focus on Moisture: Findings from the Consortium of University Housing Research Centers
1:30 - 3:00 p.m.
Cure for the Common Call Back

FRIDAY, FEBRUARY 9, 2007
1:30 - 3:00 p.m.
Cool in the Summer, Warm in the Winter: Energy Performance & Moisture Control in Concrete Homes
1:30 - 3:00 p.m.
Foundations For Better Building

SATURDAY, FEBRUARY 10, 2007
11:00 a.m. - 12:00 p.m.
What to Do With Your Basement

Further down the aisle is **Flir Systems Inc.** of North Billerica, Mass., in **Booth S10585**. The company says its ThermaCAM® B-Series infrared cameras are specially designed for home inspectors, restoration contractors and other home construction professionals. With their high-resolution thermal imagery, the B-Series cameras offer a non-invasive means to assess home conditions.

Several booths might draw your eyes once on row 10700. In **Booth S10745**, **Nisus Corp.** of Rockford, Tenn., will be giving demonstrations and explanations of its mold prevention coatings.

"We'll have our Bora-Care product, the only termite pre-treatment that also protects against fungi," says Jeff Lloyd, vice president of research and development of Nisus Corp. of Rockford, Tenn. The company will also have information on its whole-house Bora-Care with Mold-Care treatment.

"It's the only treatment that a builder can use to kill and prevent mold and more importantly decay fungi, as well as wood-destroying insects," says Lloyd.

A demonstration in **Booth S10767** might also draw your eyes- or ears, since Houston-based **Valéron Strength Films**' booth will feature an actual draining wall, complete with thunder and lightning sound effects.

Attendees can stop and talk with Paul McKenna, who, according to information from the company, invented the EVD technology used in the company's Valéron Vortec™ drainage barrier. McKenna will be able to explain how the thin, flexible plastic film's patent-pending pattern of multi-directional drainage channels facilitates water drainage by channeling water that gets past the siding, away from a structure's exterior wall surface.

No Burn® Inc. of Wadsworth, Ohio, exhibiting in **Booth S10772**, may have got its start fighting fires, but its coatings have mold-resistant properties as well. In particular, the company's Wood Gard Mih Plus, can be applied during construction to exposed wood to prevent the growth of mold.

Atlanta-based **Sto Corp.** will feature its Sto Powerwall® NexT stucco in **Booth S10997**. Combined with Sto Guard®, the company's spray-on building wrap, the system is designed to form a wall cladding that protects against moisture intrusion and air leakage in a building's wall assemblies. The company has also recently introduced StoCreativ™ Brick. When used properly, it can prevent water intrusion and air leakage, and create a cladding system that is more energy-efficient and mold-resistant than traditional brick cladding.

Mortar Net USA Ltd. of Gary,

Valéron Vortec (Booth S10767) features a pattern of multi-directional drainage channels that moves water away from a structure's exterior wall.

Protective Coatings Group (Booth S10535) has introduced its Hi-Build Masonry Block Filler™ and Pro-Clean 101™ coatings.

Ind., in **Booth S11159**, will be looking toward preventing moisture build-up behind masonry walls. Its HouseNet product is a dovetail-shaped recycled polyester 90-percent open mesh material that suspends mortar droppings at two height levels. It is designed to prevent damming and to ensure that walls breathe, drain and dry quickly and efficiently out of the wall cavity through Mortar Net Weep/Vents. Both products also contain an antimicrobial additive to inhibit mold growth.

In addition, a new, fully-integrated flashing system combines several moisture control methods into one easy-to-handle, easy-to-install flashing panel. The TotalFlash cavity wall drainage system uses a polyester mesh that prevents damming by mortar and grout droppings. No-clog weep tabs direct moisture away from the cavity.

To learn about construction techniques for building dry buildings, stop by **Booth S11765** to pick up information from **Quality Built** of San Diego (**Booth W5745** is the second stop for attendees looking to learn about construction from this company).

The company offers information to builders on preventing construction defects, such as those that lead to moisture intrusion.

"Basically it is risk management, it is field inspections and corrections, systems and techniques deigned to help builders prevent construction defects," says Stan Luhr, chief executive officer, of the services the company provides. "Prevention is really the key with our homebuilders."

Next, you can stop at **Booth S11813** to learn about Cambridge, Mass.-based **Grace Construction Products**' new Perm-A-Barrier VP. The fluid-applied, acrylic air barrier membrane was designed to provide continuous air tightness and water protection throughout the wall assembly, while allowing water vapor to escape. Designed for use in above-grade wall assemblies, the product is sprayed directly onto substrates, including damp-to-touch concrete and masonry surfaces, where it becomes part of the structural wall system. The company says that this application method eliminates fastener holes that can promote air and water penetration.

One aisle over, **Foster Products** of Arlington Heights, Ill., in **Booth S12131**, will display its latest antimicrobial coating, Clear Defense™ 40-55™. Formulated with EPA-registered additives, the clear, mold-resistant coating was designed to protect the aesthetics of exterior and interior surfaces of residential, commercial and industrial properties by resisting the growth of mold, mildew and algae on its surface. Clear Defense includes fungistatic agents and a durable acrylic polymer that forms a hard film over a variety of surfaces.

"This effective, long-term solution delivers results which translate into lower overall maintenance costs," says Tracy Muller, Foster brand manager. "Not only is this new coating clear, it is also UV-, water- and dirt-resistant for prolonged aesthetic appeal."

In **Booth S12476**, **Vapor Free Crawlspace Systems** of Murfreesboro, Tenn., will exhibit its VaporFree® System, a high performance vapor retarder made from polyethylene resins. It offers high tensile strength, puncture resistance, low moisture vapor permeability as well as resistance to decay.

"As new construction methods are evaluated by both builders and researchers, it will be important to factor in the value of reduced callbacks for moisture and mold complaints," says Jim Thomas, president. "Moisture management and control in the crawlspace is essential for maintaining the structure as 90 percent of building failure is due to moisture. A Vapor Free Crawlspace will save energy, eliminate cupping of hardwood floors, reduce moisture levels significantly, reduce mold growth and create a

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Grace Construction Products' (Booth S11813) new Perm-A-Barrier VP was designed for water protection throughout the wall assembly.

Pactiv Building Products (Booth W101) GreenGuard® RainDrop® housewrap features vertical cords that drain water away.

more stable environment from season to season."

A short step away is **Booth S12701**, where **Carlisle Coatings** and Waterproofing of Wylie, Texas, will offer information on its self-adhering roofing underlayments, door and window flashing products and below-grade waterproofing membranes. The company's latest product, Flexphalt TWF, offers moisture protection in 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.

Finish out the hall with a stop at **Booth S12906** to see the new flashing panels from **Quickflash Weatherproofing Products Inc.** of Las Vegas. The company aims to prevent water from entering buildings through plumbing, electrical, gas and HVAC exterior protrusions with its line of high-grade polyethylene plastic/thermoplastic rubber flashing panels.

"We offer the missing piece in the building envelope system," says Bill Gilleran, Quickflash chief executive officer. "You flash your doors and windows, now you can flash your penetrations."

Walking Through the West Hall

When you reach the West Hall, you should be prepared for towering booths and tons of walking. You might start with **Pactiv Building Products** in **Booth W101**. This booth is only one of the places where attendees can learn about the company's GreenGuard® RainDrop® housewrap. The woven housewrap is also featured in the IBS Renewed American Home® 2007, the first restored home ever to be presented at the show.

Vertical cords embedded every few centimeters along the face of the breathable housewrap create drainage channels that divert water straight down. According to information from the company, the drainage channels facilitate airflow along the exterior face of the wrap, allowing the wall to dry quickly.

"The GreenGuard® Housewrap has done a wonderful job of keeping moisture out during our extensive renovations," says Stephen Gidus, co-owner of PSG Construction, one of the companies restoring the Renewed American Home.

Once you make your way to row 1,000, you might find your attention caught by **Booth W1571** where **DuPont** of Wilmington, Del., will exhibit moisture control products such as its Tyvek® ThermaWrap™. According to the company, this housewrap provides the benefits of a weather-resistant barrier and helps thermal management by managing radiant heat, while helping to protect structures from air and water intrusion and UV rays. The specially engineered housewrap features a breathable aluminum layer. Its combination of high vapor permeability and thermal protection forms a wall defense against moisture.

Fortifiber Building Systems Group® of Reno, Nev., in **Booth W5453** is offering two new additions to its line of weather-resistive barriers. The new offerings, FortiWrap™ and PlyDry™ are durable, woven polypropylene housewraps.

Marketing services manager Chris Yount says, "We are the only company that manufactures perforated housewrap, monolithic housewrap and asphalt saturated kraft paper. This means we can provide honest information about the pluses and minuses of each system, and can help you find the right choice for your specific budget, climate, cladding and construction."

A row over in **Booth W5661**, **Cosella-Dörken** of Beamsville, Ontario, will have an array of barrier wraps and waterproofing membranes. The company's latest offering is Delta-Dry, an above-grade barrier wrap. The impermeable polyethylene sheet features channels on both the front and back to provide drainage, which Dwight Walker, a technical expert with the company, explains eliminates the need for a permeable membrane such as housewraps or perforated tar paper.

"The big benefit from the Delta-Dry is that it stops the intrusion of solar driven moisture into the building,

Carlisle Coatings and Waterproofing (Booth S12701) offers its Flexphalt TWF for masonry through-wall flashing.

Fortifiber Building Systems Group® (Booth W5453) has introduced its new FortiWrap™ housewrap.

which the typical flat sheets in the past were not designed to handle," says Walker. "In fact, right now we have an application for approval from ICC-ES to use Delta-Dry as an alternative to flat papers."

At **Booth W5984**, you can focus on keeping basements dry with products from **Basement Systems Inc.** of Seymour, Conn.

"The CleanSpace family of products seals out the unconditioned outside air with vent covers and doors, and drains standing water away with SmartDrain, the ultimate crawl space sump pump system," says Daniel Fitzgerald, director of marketing for Basement Systems. "Relative humidity in the environment is lowered to below 50 percent, where mold won't grow, with the SaniDry Crawl Space Air System. The CleanSpace® System and its related products creates a healthier, more energy efficient home."

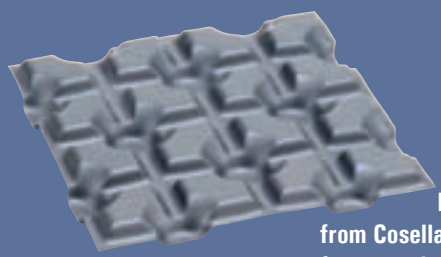
Attendees looking to keep door frames dry can check out **MFM Building Products Corp.** of Coshocton, Ohio, in **Booth W6383**. The company's WindowWrap™ flashing systems are designed for all door and window installations. Properly applied to wood sheathing beneath exterior surfaces of brick, stucco, vinyl or metal siding, the company says the flashing system self-seals around fasteners to create a secure barrier against rain and wind. For applications around sills, round and arched windows, the company also offers WindowWrap™-Flex.

In **Booth W7033**, **Protecto Wrap Co.** of Denver will display its patent-pending Protecto Sill Drainage System™. This window sill drainage system combines the company's peel-and-stick adhesive with positive-sloped, closed-cell foam to direct water or condensation found inside window openings to the outside weather plane of the structure. The system features a mold-resistant wicking material that is applied to the top of the company's waterproofing membrane for the purpose of absorption and transfer of moisture to the outside of the window opening.

"As everyone is well aware, the housing/construction industry will be even more competitive in 2007. The companies that can continue to differentiate themselves will outpace their competitors. Protecto Wrap's products can help them do just that," says Timothy R. Schettler, vice president of sales and marketing.

In **Booth W7048 SureSill Ltd**. will feature the latest addition to its integrated flashing systems for doors and windows. According to the Austin, Texas-based company, the HeadFlash-Flex™ product with a drip cap bends around the curved tops of windows with a continuous upper edge, providing enough height for a proper overlap with building paper and effective drainage. Available in two standard lengths, 60 inches and 120 inches, each system is entirely customizable because it can be easily cut to necessary lengths on the jobsite.

SureSill Ltd. (Booth W7048) HeadFlash-Flex™ provides an integrated flashing system for doors and windows.



Delta-Dry barrier wrap from Cosella-Dörken (Booth W5661) features channels on the front and back to provide drainage.

IN ACTION

NASA Offers Down-to-Earth Assistance with Moisture Problems

The hotel industry is receiving some out-of-this-world help for mold problems, according to an article in the June issue of *Lodging Hospitality*. The journal reported that small properties are able to take advantage of free engineering assistance from the NASA-funded Space Alliance Technology Outreach Program (SATOP) in resolving moisture-related problems.

Small businesses, defined as companies with fewer than 500 employees, are able to receive up to 40 hours of free technical assistance from SATOP engineers, according to information from Christophe Gilfriche, director of SATOP-Florida. Help is usually provided via phone, fax or email. Small businesses with problems that can't be solved through available commercial solutions are matched up with an engineer from anywhere in the country best suited to provide an answer to the problem. According to Gilfriche, many of the SATOP partners are NASA space contractors, as well as universities.

PHOTOS COURTESY OF SATOP

The NASA-funded Space Alliance Technology Outreach Program (SATOP) helped pinpoint the source of this mold problem in the Siesta Key Suites, near Sarasota, Fla., after the hotel owner ran out of other possible solutions.

The *Lodging* article cited one example of a project SATOP had completed, the Siesta Key Suites near Sarasota, Fla. The hotel owner noticed continuing moisture problems, including heavy condensation on the windows when the air conditioning ran. The owner learned of the SATOP program and, after a request for technical assistance, was put in contact with Gilfriche. Gilfriche and mechanical engineer John Dillon visited the hotel to inspect the problem and were able to quickly pinpoint the cause: following earlier repairs, the building had not been properly sealed. The consultants offered a range of recommendations, including further sealing air vents, ductwork and wiring conduits; rerouting and extending gutters to drain away; and having the driveway graded to help water flow away from the building. According to the article, the building owner was able to successfully implement each of the modifications and the moisture problem has been fixed.

"We help everyone as long as they fit under the definition of small business, but we're not here to take business away from other companies," noted Gilfriche. "If there's a product or service available from commercial companies, we'll recommend them."

SATOP is generally a last-resort option for companies that have been unable to find a solution to their engineering problem from any other source. Gilfriche noted that in the case of the Siesta Keys Suites, the hotel owner had already turned to a mold remediation company, and spent a great deal of money on repairs, but the problem had persisted.

Gilfriche said that SATOP gets approximately 500 requests for assistance each year.

"Every case is different and every mold is different," he said.

Gilfriche stressed that anyone, with any type of engineering challenge, can contact the organization for free assistance.

BRIEFLY

Environmental Testing and Technology Inc. (ET&T) of Carlsbad, Calif., has launched a new website at www.iaqsurveys.com. The revamped site includes information on the company's services and credentials, as well as access to presentations given by staff, "top 10" warning signs for mold and links to columns contributed to **Moldmag** by ET&T president Peter Sierck ... **Dri-Eaz Products Inc.** of Burlington, Wash., has implemented Allegiance Active Listening System solutions to help improve its internal service quality. Dri-Eaz purchased CustomerVoice, PartnerVoice, EmployeeVoice, EmployeePulse and ActiveSurvey as part of the company's ongoing effort to improve customer, employee and partner retention and loyalty.

"We're trying to do outreach, and ultimately trying to transfer space technology to the small business world," said Gilfriche. "We're trying to show the public that NASA and the space program is more than launching a rocket every once in a while … there's a wealth of technology."

➡ **www.spacetechsolutions.com**

COMPANY NEWS

nzymSys Inc. Launches Mold Remediation and Prevention Franchise

nzymSys Inc. of Millersville, Md., has launched the nzMold franchise system, which the company says offers an environmentally-responsible approach to mold remediation and prevention.

The nzMold product uses enzymes developed from mold to break down the cell walls of the spores. According to David Bloom, vice president of nzymSys, the product denatures mold spores and continues to work on the proteins inside the spore, so that it breaks down any allergen potential.

The process is non-invasive and has a quick turnaround time, according to information from the company. The product is applied by American Indoor Air Quality Council-certified franchise technicians, who spray the product as a fine mist intended to penetrate porous wall surfaces. In addition, Bloom said, franchise holders are trained in the building sciences so that they perform a through investigation before applying the product, in order to find out the cause of the water damage.

nzymSys's (from left) David Bloom, vice president, Stephen Gorton, director of science and technology, Winfield Kelly, president and CEO, stand outside their Millersville, Md., headquarters.

According to Bloom, the company had eight businesses using this process prior to the franchising, and one additional franchise has already been signed on.

"First one has just signed on in Maryland and we've got four others that are waiting—we're in the process," said Bloom. He added, "The inquiry level has been quite high."

➡ **www.nzymsys.com** m

PARTICLE COUNTERS

Lighthouse Puts Its 3016 IAQ Into Pros' Hands

Lighthouse Worldwide Solutions of San Jose, Calif., offers the Handheld 3016 IAQ for detecting and verifying particle sources in investigations, filter testing, pre-testing prior to CIH certification, baseline studies and validation of HVAC duct cleanliness.

The Handheld 3016 IAQ displays six channels of particle data in either cumulative or differential mode, as well as temperature, mass concentration levels and relative humidity data. According to information from the company, the tool offers a user-friendly graphical interface displayed on a 3.8-inch backlit LCD touch-screen display. Data is downloaded using the company's *LMS XChange* software. The unit is able to store up to 3,000 records.

www.golighthouse.com

SAMPLERS

Sceptor Carries In Its OMNI^{2}™ Air Sampler

The OMNI^{2} portable air sampler from Sceptor Industries of Kansas City, Mo., automatically tracks sample ID numbers and collection data to maintain chain of custody integrity throughout the sampling process. It also incorporates a particle counter and the ability to measure temperature and relative humidity to allow users to characterize their environment before and during sampling.

To implement sample tracking, each OMNI^{2} sample cartridge is tagged electronically with a unique serial number. The tool reads the number at the start of collection, and records it, along with collection data, in its data log. The log can be transferred to a PC via a built-in USB port.

The OMNI^{2} also features real-time display of airflow, particle count and environmental conditions on its user interface. Onboard decontamination and airflow calibration are performed by the push of a button.

www.sceptorindustries.com

THERMAL IMAGERS

Fluke Sees with Infrared

Fluke Corp. of Everett, Wash., offers its TiR Series IR Flexcam™ thermal imagers for building diagnostic applications, including water damage restoration and mold remediation. The imagers feature IR Fusion™ technology to help users pinpoint building problems by combining both visible light and thermal images.

Each of the six models in the series provide a 5-inch color LCD to view on-camera images, high resolution and thermal sensitivity of < 0.05ºC NETD on select models. Each imager features a 20 mm germanium lens on a 180º articulating mount, and one-finger SmartFocus operation.

The company is also offering its IR Insight® XS and XST portable infrared imagers. The IR Insght imagers are optimized for low-contrast thermal applications with strong thermal senstivitiy. The 160 x 120 focal plane array imagers deliver gray scale or color images on a 3.5-inch, 30-bit color, high-resolution, high-contrast display. Designed for one-button operation, the rugged imagers are suitable for use in building diagnostic applications including moisture remediation.

Both series feature SmartView™ software for navigating, analyzing and enhancing IR images, as well as generating survey reports.

www.fluke.com

TOOLS AND EQUIPMENT

Zipwall® Springs to Action

ZipWall LLC of Arlington, Mass., is providing remediators a 4 Pack Plus package of equipment for creating a containment system. The package includes four ZipWall SLP™ spring-loaded poles, which the company says are stronger, lighter and more durable than previous poles. The poles weigh about 1 ½ pounds each, can hold about 80 pounds a piece and reach more than 12 feet from a collapsed height of under 5 feet. Twist locks offer quick installation.

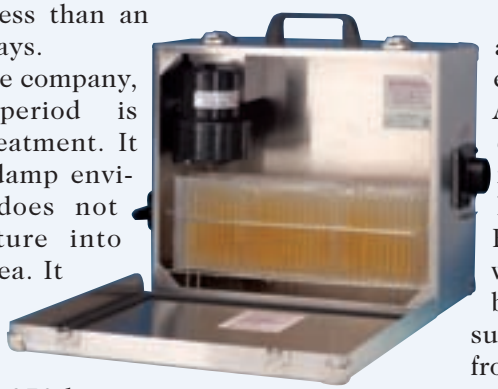
The package also includes two Foam Rail™ cross bars for sealing barriers tightly across the ceiling; four GripDisk™ slide stoppers for locking the plastic sheeting to the floor under the pole; and two self-adhesive zippers for quick and easy access in and out of the barrier. The package comes with a carrying case and altogether weighs less than 12 pounds.

www.zipwall.com

VaporShark Removes Moldy Odors

The VaporShark from Vaportek Inc. of Sussex, Wis., was designed to provide a safe and simple solution to tough odor problems. The VaporShark's dry vapor technology has proven effective for flood damage.

According to information from the company, the compact VaporShark can be tailored to specific applications by installing from one to five replaceable odor-neutralizing membranes, as well as adjusting the air inlet control. Length of treatment required may vary from less than an hour to several days.



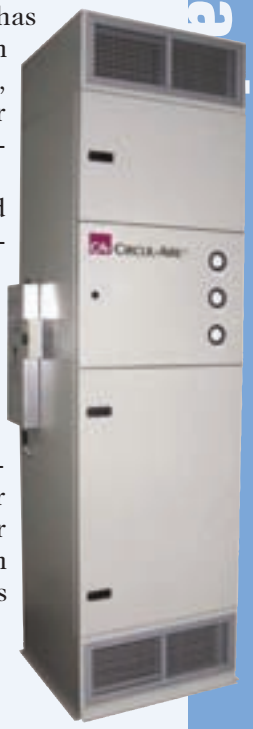
According to the company, no recovery period is required after treatment. It can be used in damp environments and does not introduce moisture into the treatment area. It treats areas up to 50,000 cubic feet. The typical membrane life is 270 hours.

www.vaportek.com

AIR FILTRATION

Circul-Aire Introduces Total Filtration System

The Circul-Aire® division of Dectron Internationale, based in Roswell, Ga., has introduced the BioCirc® air filtration system, which combines ultraviolet, mechanical filtration and gas-phase air purification technologies in a single-source unit.



The system combines both UV-C and UV-V technologies to destroy reproductive capabilities of biological spores and reduce odors. UV lamps range from 10 to 60 inches long and are positioned parallel to the air stream to maximize exposure time and intensity. The company's gas-phase technology chemically absorbs gaseous contaminants and odors from the outdoor air supply or return air. Conventional or HEPA media filtration, ranging from MERV 8 to 16, removes particulates as small as 0.3 microns.

www.circul-aire.com

EZ Breathe Provides Clean, Healthy Indoor Air

EZ Breathe of Macedonia, Ohio, has announced that it has completed the first in a series of new tests on its E-Z Breathe ventilation system. According to information from the company, the results from the mold-specific test indicate an average mold spore decrease of 67 percent after installation of E-Z Breathe.

The system expels stale, polluted air and provides a whole-house air exchange six to ten times each day. According to information from the company, unlike most dehumidifiers and air purifiers that re-circulate the same stale air, the E-Z Breathe unit replenishes a building with dry, clean air on a continuous basis. The quiet and efficient unit is suitable for indoor spaces ranging from a small crawlspace to a 7,000-square-foot building.

www.ezbreathe.com

MARKETPLACE

SERVICES

CONSULTING SERVICES

MOISTURE CONTROL SERVICES

Calendar 2007

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.

March 7-8, 2007
Florida Chapter IAQA Statewide Workshop
Florida Atlantic University.
Ft. Lauderdale, Fla.
Sponsored by the Ft. Lauderdale Chapter IAQA.
Contact: Maurice Baum at 954/967-0011.

March 13-16, 2007
Solutions Convention and Exhibition
Buena Vista Palace.
Orlando, Fla.
Sponsored by the Association of Specialists in Cleaning and Restoration (ASCR).
Contact: ASCR at 800/272-7012.

March 18-21, 2007
Claims Conference and Insurance Services Expo
Walt Disney World Swan and Dolphin Hotel.
Orlando, Fla.
Sponsored by the Property Loss Research Bureau and Liability Insurance Research Bureau.
Contact: Claims Conference at 630/724-2200.

March 25-27, 2007
National Green Building Conference
Adams Mark Hotel St. Louis.
St. Louis.
Hosted by the National Association of Home Builders.
Contact: Christopher Hood at 202/266-8684.

April 20, 2007
Florida Inter-County IAQ Council
4th Annual Open House
Harborside Event Center.
Fort Myers, Fla.
Sponsored by the Indoor Air Quality Association (IAQA).
Contact: IAQA at 301/231-8388.

Applause waits on success. By failing to prepare, you are preparing to fail.

—Ben Franklin

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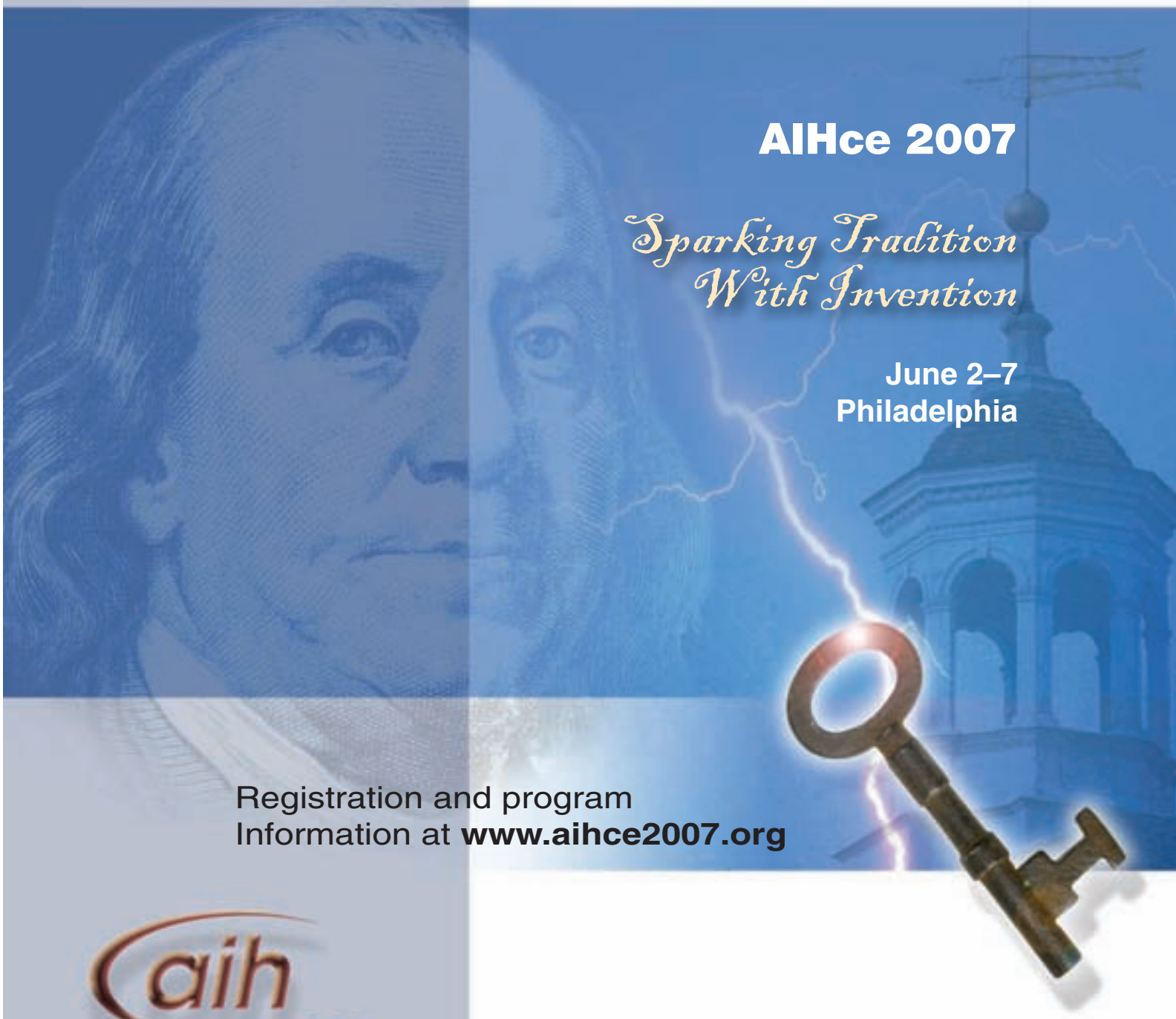

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Winter Warmth

In many parts of the country wintertime is marked by snowfall, icicles and chilly temperatures. It is also marked by the holiday season, and a feeling of goodwill toward others. We've found in the consumer press both warnings for chilly weather and warming stories about helping others—all with mold and moisture problems in mind.

Pros Mold Public Awareness of Mold Problems

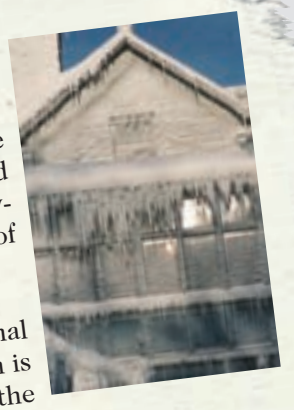
Mold remediation specialist Richard Power of Worcester, Mass.-based Commonwealth Environmental Services is leading an effort to bring together mold experts, remediation specialists, contractors and contractor suppliers to educate and inform the public, according to an October article in the *Telegram and Gazette*. One way the company has raised awareness was through the donation of time and effort to repair the mold-infested home of one Massachusetts family.

The Jakubowskis and their three children left their home in Dudley, Mass., after discovering excessive mold growth. According to the article, companies have been recruited to test the home, perform the mold remediation and offer consultations free of charge. DryRight moisture control fiberglass insulation from CertainTeed was donated to prevent future mold problems.

Power told the newspaper that the companies hoped to raise awareness about mold from the first step of identifying the problem to solutions for rebuilding to future prevention.

Power added that awareness of mold problems is particularly needed among contractors.

Facility Managers Bundle Up Their Buildings



The November issue of *Buildings* magazine offered tips for preparing for winter, and the moisture intrusion problems the season can bring.

The article discussed four methods for keeping snow and ice problems at bay in commercial buildings: sloped roofs, according to the article, are less likely to cause moisture damage from snow than flat roofs; ground sloping away from the building moves surface water quickly away; covered exterior entries prevent snow from blowing inside; and a section of sloped intake plenum can move moisture outside or to a drain.

The article also addressed some specific wintertime problems.

It reported that ice dams typically occur on roofs that have minimal venting, or large eave overhangs. Experts report that proper roof design is necessary to minimize this problem. Keeping eaves free of debris and the roof free of snow also helps.

The article also stressed the importance of knowing a building's snow load—the amount of snow and ice it can hold in terms of pounds per square foot—and knowing whether the roof is up to code or not. The article also recommended installing a flashing system with an angle that will allow snow and ice to drain off instead of building up and blowing off.

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