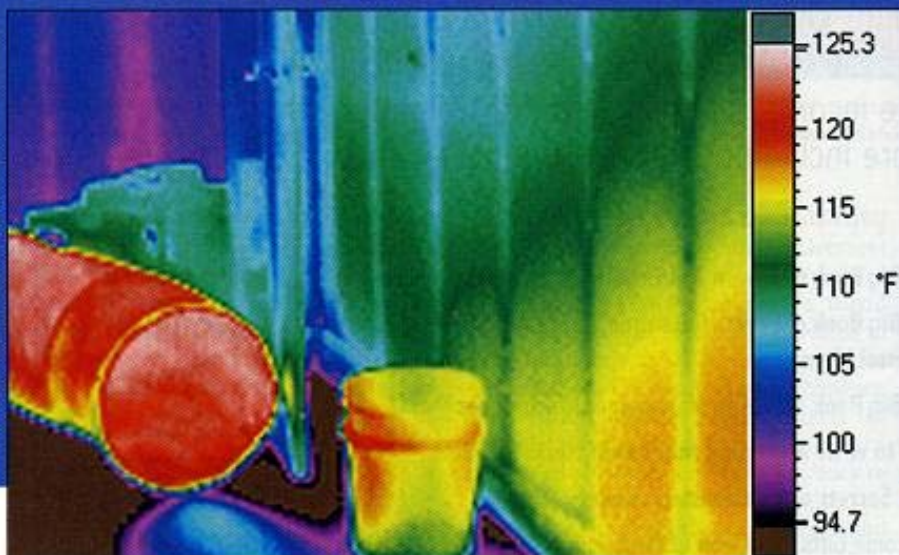


Billions at Stake

Heat Treatment Method May Provide Relief

By Alan Forbess

All Photos courtesy: David Hoffman and E-Therm Inc.



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Whether due to hurricanes or burst pipes, escalating water damage and mold liability could cost property owners billions of dollars as inclement weather trends continue. And currently, serious mold contamination is now threatening water-damaged multifamily communities, homes, and commercial properties throughout the regions hit by the hurricanes.

With losses estimated to rise beyond \$90 billion in flooded New Orleans and the Gulf Coast, the more than 15,000 adjusters dispatched aren't nearly enough to handle the region's estimated 2 million claims.

Flooding that is not addressed immediately causes mold growth and results in claims. Moreover, the hurricanes may just be the start of painful times for property owners if the disruptive weather patterns predicted for the rest of the century by Purdue University researchers prove correct.

With all this bad news piling up, the real estate industry could use some good news for a change. Using a heat treatment process provides an alternative methodology, which could save the insurance and real estate industries billions of dollars.

The Power of Heat

Heat has shown to be effective in destroying active mold growth sites, and kills viable mold spores, bacteria, viruses, insects, and other heat-sensitive pests and organisms. Heat also accelerates the off-gassing of odors and toxins, even in inaccessible areas, without the use of chemicals. The proper application of heat can dry out wet buildings much quicker than the traditional method of simple air movement and dehumidification typically used by flood restoration contractors.

Whether applied to aid in disaster recovery or in addressing more routine water intrusion problems, property owners are finding that heat offers an effective alternative or adjunct to costly

traditional demolition-based mold remediation and flood restoration.

Used in conjunction with limited "remove and replace" remediation or as an alternative to it in some instances, the heat treatment process could minimize liability and increase clearance testing success rates. Heat also allows the contractor to treat many building materials in place, avoiding the cost and expense of unnecessary removal of walls, flooring, cabinetry, and furnishings.

Products use superheated, dehumidified air to disinfect, decontaminate, and dry out buildings in much the same way heat is used to pasteurize milk and kill bacteria in wine. Propane-powered portable heaters and air blowers inject superheated air into the affected space, raising the temperature of a single room or entire structure to as much as 160 degrees Fahrenheit for several hours.

A Case Study

Recently, a large investment group purchased a student housing complex at

a major Southern California university. During the due diligence period, building inspections revealed water damage or elevated moisture levels in 109 of 122 residential units, along with an extensive termite problem. Complications included an accelerated restoration schedule, budget constraints, and a summer occupancy schedule that was already booked.

The group was faced with a very difficult problem as moisture survey readings indicated significantly elevated levels in building materials within almost every bathroom in the complex. Traditional remediation efforts would have required destructive openings in every location where moisture readings were significantly above background levels. This would have required complete closure of the facility and several months of demolition and reconstruction affecting virtually 90 percent of the units in the complex.

Instead, the community used the ThermaPureHeat process to restrict demolition to only those areas where physical damage or visible mold growth was present. ThermaPureHeat is a patented process that is licensed by E-Therm Inc. Of the 109 units needing remediation, only 10 units required extensive demolition, including cabinetry or shower stall removal. The heat process killed the mold in inaccessible areas, allowing minimal removal and replacement as part of site remediation, according to United Campus Housing.

This significantly cut required restoration time and costs. All units were HEPA cleaned and sampled as part of traditional post remediation testing, with all 122 units passing. By working in selected buildings and moving quickly through the complex, the university was able to house specialty groups and camps throughout the summer, meeting its stated obligations and generating revenue without interruption.

Total savings were estimated at \$4 million compared to traditional remove and replace remediation, which would have closed the facilities to summer use and required extensive tear down and rebuild expenditure. The heat treatment simultaneously eradicated the termite infestation, and the complex owner is repeating the process at another large multifamily property in Texas.

"Heat treatments are a win-win for the insurance company and property owner," says Michael Geyer, PE, CIH, CSP, president of Kerntec Industries, a Calif.-based environmental consulting firm. "Heat is even being used to achieve final clearance on tough traditional remediation projects where typical methods often fail. It can be used to salvage moisture-damaged contents instead of disposal and can help preserve historical properties in lieu of destructive removal."

Geyer adds, "Had the heat treatment been widely used in New Orleans and other hurricane ravaged areas, buildings with minor to moderate water damage could have been rapidly rehabilitated for far less than typical remove and replace remediation."

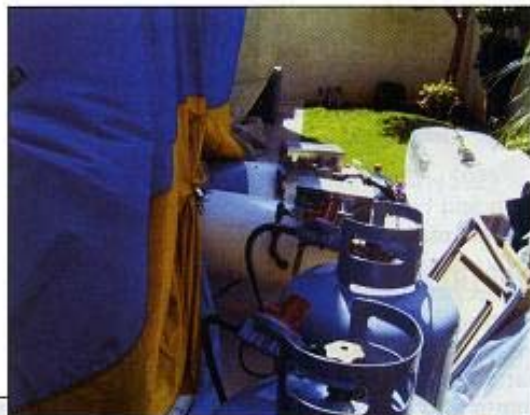
The Drawbacks of Traditional Remediation

Traditional mold remediation typically includes limited or extensive demolition of impacted building materials, and extensive cleaning using techniques such as wire brushing, sanding, HEPA vacuuming, and microbial wipe down. This has been the standard mold remedy, which is costly and time consuming. As with all

response actions, the more extensive the tear down the higher the build back costs.

"Cost escalates when suspected mold requires the tear down and build back of structures that may be salvageable," says Joe McLean, CEO of Alliance, a Calif.-based environmental contractor that deals extensively in mold and asbestos remediation. "For instance, if a consultant specifies removal of a four-foot perimeter on four walls because moisture has wicked up one, the tear

This student housing complex in Southern California had water damage or elevated moisture levels in 109 of 122 residential units. The community used the ThermaPureHeat process to kill the mold in inaccessible areas, allowing minimal removal and replacement as part of the site remediation. Demolition was limited to areas with physical damage or visible mold growth.





Insurers and property owners are finding that heat offers an effective alternative or adjunct to costly traditional demolition-based mold remediation and flood restoration. Heat treatment can raise temperatures in targeted areas or entire structures to levels lethal to biological pests.

down and build back of showers, cabinets, countertops, and such can significantly increase costs."

Because insurers often cover building structures, their contents, as well as loss of use, long remediation projects that vacate the occupants for weeks or months also can rack up high secondary costs. The cost for replacement housing and meals can exceed remediation costs.

Inaccessible areas, such as wall cavities, crawlspaces, headers, doorjambs, and vapor barriers, present another dilemma. Either spend prohibitively to reach, remove, and replace building structures in these inaccessible areas, or leave them with potential live mold or mold spores that could pose a re-infestation hazard.

Reining in Mold Liability

Some in the industrial hygiene community feel that the sky-high cost of mold liability can be brought back down to earth by refocusing on the basics.

"Mold remediation today is stuck in the mindset of early asbestos remediators who believed that everything had to be ripped out regardless of the cost," says

Geyer. "Remediators later learned that asbestos could be more effectively managed in place at lower cost in many instances; the same is true of mold today."

According to Geyer, the industrial hygiene community has been focusing on the symptom—mold—while failing to properly address the cause—moisture.

"If physical removal is the only acceptable remediation method, you may as well demolish the building," he says. "Because you can't simply scrub mold off the surface when its roots grow into the substrate." Geyer explains that mold, as a fungus, is a plant without chlorophyll whose roots grow into the substrate of building materials and whose spores are like the seed-bearing fruit of a tree.

"To properly handle mold, you have to handle the moisture problem," he says. "Applying heat through a process like ThermaPure's is not only lethal to mold and other biohazards like bacteria and insects, but it also dries out the substrate, structure, and architectural elements. This helps prevent future recurrences since the substrate is no longer hospitable to growth."

The Bottom-Line

While heat treatment can't eliminate traditional remove and replace remediation when mold is visible, it's now an option that insurance companies and property owners must consider in order to shrink escalating water damage and mold liability costs. Multiplied by the million-plus residences and businesses affected by water damage and mold in the last year alone—whether through disaster or routine water intrusion—heat treatment could save \$1 billion annually by salvaging existing structures and speeding recovery to minimize loss of business and secondary expenses.

Since heat treatment can raise temperatures in targeted areas or entire structures to levels lethal to biological pests, it has been successfully used against mold and fungi; bacteria and viruses; insect infestations; and to improve indoor air quality by accelerating the off-gassing of odors and toxins. **pro**

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In the ThermaPureHeat process, technicians use propane-powered portable heaters and air blowers to inject superheated air into the affected space. ThermaPureHeat also accelerates the off-gassing of odors and toxins, even in inaccessible areas.

