

COLLEGE

Planning & Management

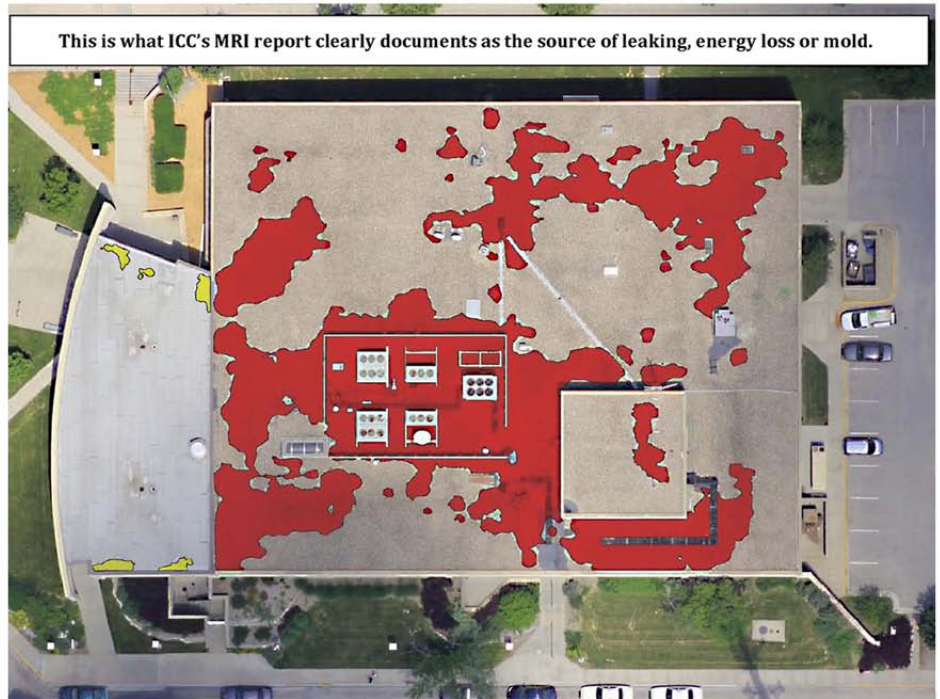
FACILITIES • SECURITY • TECHNOLOGY • BUSINESS

Weathering the Storm

How do you prepare for a natural disaster? When Hurricane Ike struck Texas, the University of Houston was ready, and eventually received \$26.3M for both obvious physical damage and hidden moisture damage as a result of the storm.

Hurricane Ike was the third costliest hurricane to ever make landfall in the U.S., taking a backseat only to Katrina and Andrew. Just a Category 2 hurricane when it made landfall in Galveston, TX, in September 2008, Ike's maximum sustained winds were 145 mph and the torrential downpour was eight to 13 in. Hurricane Ike unleashed \$29.6B in damage regionwide. Almost 200 lost their lives area-wide, millions were without power, widespread flooding invaded downtown Galveston, and windows broke in high-rise buildings. The catastrophe resulted in the largest evacuation of Texans in the state's history and became the largest search and rescue operation in U.S. history.

Dave Irvin, associate vice chancellor at the University of Houston (UH), was one of a large UH team who was on-site when the hurricane's eye crossed over his campus. Within hours after Ike's pass, Irvin and his team were on roofs and inside buildings, assessing damages. "Our first responsibility is to our students, to have the campus open and ready to resume classes," said Irvin.



MRI Intelligence Radically Alters FEMA Awards & Facility Management Practices

Returns On Investment That Are - 5 Times GREATER!

Whether it is storm related or a high tech tool in a facility manager's arsenal, ICC's patented MRI sees inside building envelopes and provides an incredible return on investment. *University of Houston received \$26.3 Million vs. \$4 Million for Hurricane Ike, had they relied on traditional evaluation methods.*

The importance of more accurately seeing inside the building envelope has affected UH's current and future facility management procedures and long/short term planning. Facility managers come to appreciate that a more accurate understanding of their roof condition will significantly reduce waste in multiple departments: new facilities, maintenance, energy, risk management, environmental, budget planning and information technology storage, access and distribution.

How to Avoid Waste – Storm Damage or Not?

The ability to see inside building envelopes helps facility managers avoid wasting millions of dollars. ICC's patented MRI technology has repeatedly helped reallocate more than 50% of the funds originally set aside or proposed for roof replacement. Most of these funds would have been wasted or spent prematurely. ICC's report gives facility managers the opportunity to reallocate their funds to real and high priority problems while preserving materials which still have a useful life.

Take the ICC Challenge?

Use our patented MRI process to reduce your roof replacement budget by as much as 50%; School Board of Broward County's Superintendent claims 50%; Dekalb County Public Schools claims a re-allocation of \$10 Million dollars on only 20 schools planned for roof replacement; FSU asserts a 1,000% Return on Investment and over 95% accuracy to ICC's work with them over an 11 year period.

And regardless of the \$26.3M of damage the campus suffered, open they did on the Monday following Friday's storm.

Irvin says the unfortunate truth of his success is experience. "We've learned a lot of lessons from prior storm experience; Hurricanes Katrina and Rita were near misses, but these experiences served us well. First and foremost, we developed an official Disaster Plan. This plan had been run through many times, from tabletop to dress rehearsal. UH's Disaster Plan was modeled after the Critical Path Method used in construction, meaning that each facet of the plan determined exactly who would do what and when it would be accomplished.

Make Sure the Contracts Are Signed

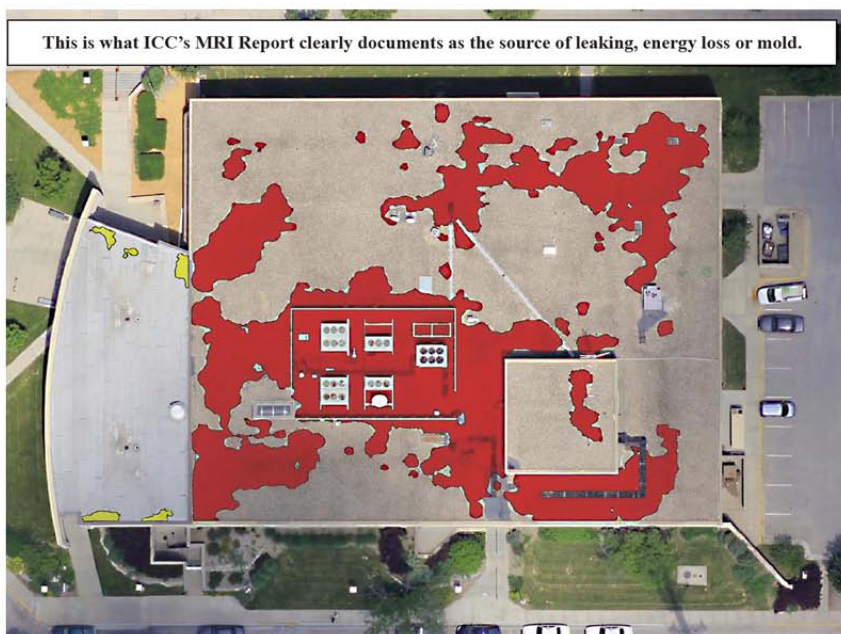
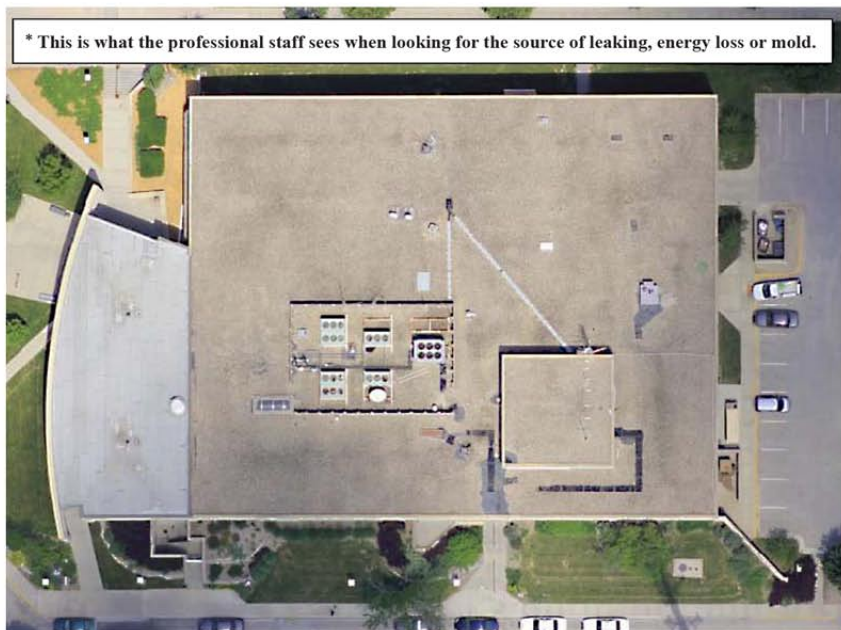
Another important aspect of the Disaster Plan was to have signed contracts in place with team members in anticipation. In addition to UH's staff, team members included ARMKO, an engineering firm who could forensically assess the physical damage; and MARSH/FACS, a forensic CPA firm who could create the reimbursement documentation. This team led to the creation of the

documentation required by FEMA, UH's insurance carrier, and the State of Texas. Roofers, debris removal, and other contracts were also in place. ICC Thermal Mapping & Surveying (ICC) was not on board initially but turned out to be a vital part of securing

an award for internal moisture damage.

Irvin said he's learned the value of pre-signed contracts. "In hindsight, it's obvious that you want to pick up the phone, get your team on site, and start implementing your plan. The faster you can get your

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* ICC has replaced advertisements with additional information and photos. Items shown in a blue box are created by ICC Thermal Mapping & Surveying and were not a part of the College Planning & Management article.

claim in, the quicker remuneration will be received. The prices are cast in stone and you have an agreed upon Code Red priority over others who are clamoring for help in the final hour," he said. "It's also no secret that serious abuses in price gouging have been reported in catastrophic circumstances, which signed, pre-negotiated contracts can avoid."

Thorough Inspections Are a Must

UH's first run-through of physical inspection revealed minimal damage — three roofs ripped off and three roofs with sectional damage. "We were cautiously optimistic and relieved that, even though the hurricane eye passed, from a cursory look the damage was not that significant and perhaps less than \$4,000,000," said Irvin.

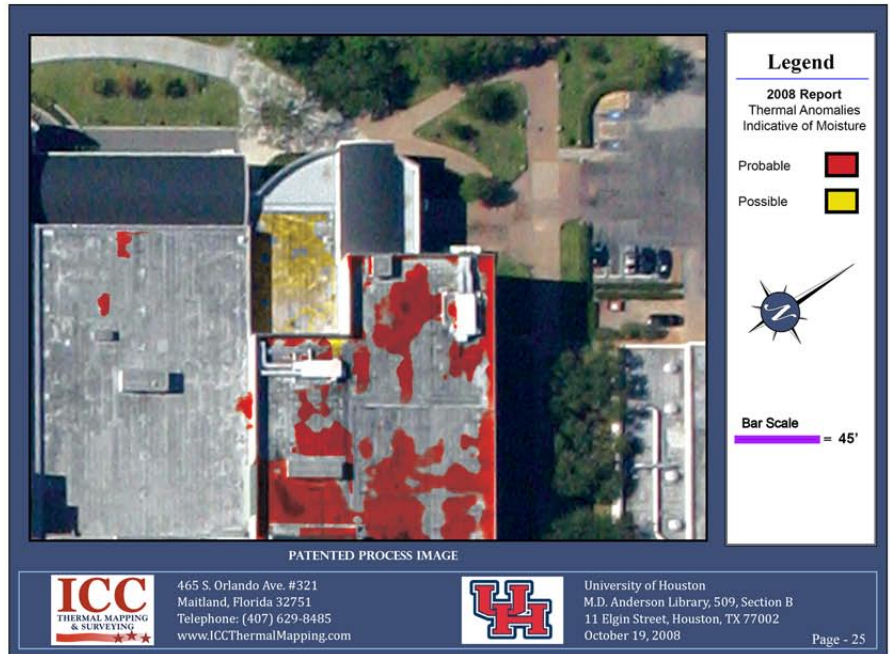
ARMKO's Mike Perry convinced UH that in addition to physical inspection, a look inside the roofs was vital to determine the scope of moisture infiltration from wind-driven rain. The UH team embarked on a walkover of all roofs, performing a hand-held survey. The walkover infrared survey confirmed the preliminary assessment of minimal damage. Irvin and Perry relayed they had little confidence in these results. Perry recommended for this task a materials testing company with a patented process that could see moisture inside the roof not visible to the human eye.

"For one, many infrared cameras purchased are fine for low-tech operations such as electrical panel inspection, but my experience is they really aren't very good for roofs," said Perry. "Walkover infrared is a 60-year-old method. This was a big job and with the damage and the award at stake, we needed to make sure we fully documented the damage."

"Initially, I was skeptical regarding my need for thermal mapping of campus roofs," recalled Irvin. Luckily, Irvin said, between ARMKO, MARSH/FACS, and some members of his own team, he was convinced it was the right step to take.

The infrared thermal mapping discovered "30 roofs had such extensive moisture infiltration they all needed to be replaced," said Irvin. "Because of our experience with prior storms and buildings that were obviously damaged,

we initially underestimated the possibility that the damage was not visible. Because we had previously restored many buildings to hurricane standards and current building code, in retrospect it was reasonable to expect that the buildings



ICC Thermal Mapping & Surveying provided the patented reports that enabled FEMA/ Insurance concerns to see inside the roof to understand the full scope of wind driven rain.



Above is a sample of an exterior wall report. Systems inspected include EFIS/DRYVIT, Stucco, CMU, Brick Veneer and Vinyl.

would show less obvious damage because of remediation and structural improvements.” Had UH not contracted for the infrared thermal mapping, however, “we would have replaced or repaired a half a dozen roofs and a couple of years down the road, when it would be too late to go back to FEMA, our insurance company, or the State to enable restoration,” Irving observed.

More Than an Emergency Service

Thermal mapping is not only used for emergencies, but also for maintenance and operations to determine if a roof or wall has a simple repair problem or needs total replacement.

Florida State University’s Dennis Bailey, associate vice president of Facilities, says FSU has been using moisture inspection reports for 11 consecutive years. “[Thermal mapping] is an important part of our Disaster Preparedness and Recovery Plan,” said Bailey.

Get a Baseline Before Disaster Strikes

“We now recommend pre- and post-baseline assessments...to our clients,” said

Jeb McPherson of MARSH/FACS, UH’s forensic CPA. “You need a baseline assessment to know exactly where you stand before a catastrophe and to simply manage your building inventory.”

Once the reports were ready to submit on Hurricane Ike’s damage to UH’s facilities, MARSH/FACS confirmed the scope of work and prepared the documentation for FEMA and the insurance company. “Because we had everything in place, we submitted our reimbursement request quickly, so we were in the front of the line. You need to get the funding request written and submitted so the claim doesn’t get bogged down,” said Irvin.

“We knew our group didn’t have the expertise to quantify internal damages,” said McPherson, “The truth is, had they gone through the exercise...before the storm and established a baseline, we could have said, ‘Here’s a before and after, and you can see the impact for yourself.’ We believe the award to UH would have been even greater with a pre-storm survey.”

Review Your Insurance Coverage

McPherson also gave an important example of how much and what type of

insurance coverage may be best suited to a client’s given situation. “On named storm deductibles for policyholders in high-risk areas, there’s a per building risk deductible. If you consider the average building has a value of \$50,000,000, the insurance policy may have a minimum threshold of damage before the policy is triggered of 3 percent of the total or, in this example, \$1,500,000. Many building problems with Hurricane Ike had claims of no more than \$1,000,000; as such this coverage would not have kicked in,” McPherson said.

When asked about the “self-insured” category that some organizations use, McPherson was very clear. “Most organizations in that category have squirreled away maybe \$2,000,000 to \$3,000,000. Had UH not had adequate insurance, what would \$2,000,000 or \$3,000,000 accomplish in the face of \$30,000,000 in damages?”

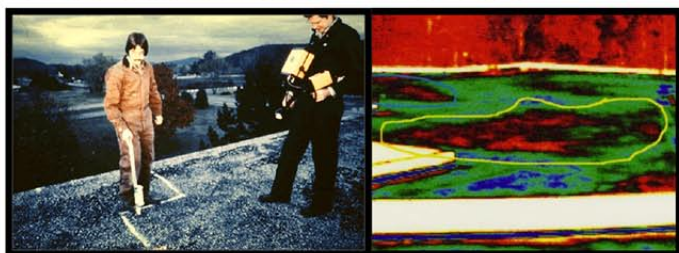
The Results of Preparation: A \$26.3M Refund

“On-site insurance/FEMA personnel thought we may get 70 to 75 percent funded to replace the 30 roofs, and at the time we thought that was pretty good. UH

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THE EVOLUTION OF INFRARED TECHNOLOGY

The 60 Year Old Walk Over Method



BOTTOM LINE: 5 TIMES the roofs restored and 5 TIMES the restoration award when comparing new versus old methods and technology.

ICC’s Moisture Recon Intelligence (MRI) plus the forensic skills of ARMKO & MARSH/FAC resulted in a \$26.3 million FEMA/ INSURANCE award for 30 roofs.

The initial infrared walk over survey identified only 6 roofs with minimal moisture infiltration. The estimated restoration cost was approx. \$4 million.

* ICC has replaced advertisements with additional information and photos.

ICC’s New, Patented Aerial Infrared




“FSU has been using ICC’s moisture inspection reports for 11 years. ICC’s thermal mapping is not only used for emergencies, but also for maintenance and operations to determine if a roof or wall has a simple repair problem or needs total replacement.”

*Dennis Bailey, Associate Vice President of Facilities
Florida State University*

ultimately was funded at \$26.3 million to replace all 30 roofs," said Irvin. "We believe we had the right plan and the right team, and it was this pre-planning that saved the day."

McPherson said that you need a collective effort when dealing with insurance companies and FEMA. "It's important that the client have their own team of experts so they can defend their position," said McPherson. "I can see great value in pulling together different suppliers and creating a partnership... I am proud of the job UH's team did for the University."

Irvin observed that the full extent of the roof damage on UH's campus, as well as their total claim reward, would not have been realized without the expert knowledge, services, and teamwork, as well as pre-disaster planning the University had in place. "Twenty-six million saved is truly \$26M earned, and now our campus is fortified to better than pre-hurricane condition. We at UH feel better prepared than ever before," he said. 

Valerie B. Patterson, President, ICC Thermal Mapping & Surveying (www.iccthermalmapping.com) in Maitland, FL. She can be reached at 407/629-8485 or via e-mail at Valerieicc@cfl.rr.com.

"We now recommend pre and post baseline assessments by ICC to our clients. You need a baseline assessment to know exactly where you stand before a catastrophe and simply to manage your building inventory... we believe the awards would have been even greater with a pre and post survey."

Jeb McPherson,
MARSH/FAC, Forensic CPA.

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"Millions of dollars in waste is occurring in every school, every college, and every building where staff is relying on age, leak reports, physical inspection or antiquated diagnostic methods including walk on the roof infrared. With total roof replacement costs ranging from \$20 - \$30 a square foot and the average public school system exceeding 5 million square feet in roofing, the potential for waste when managing this \$100 to \$150 Million depreciating asset is a stark probability."

Stan McDougall, CEO

THE TEAM APPROACH



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