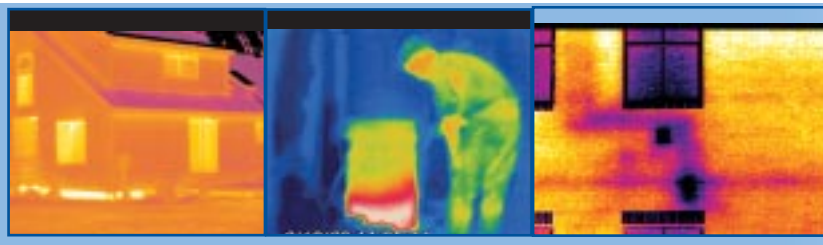
FLIR SYSTEMS™

The Global Leader in Infrared Cameras



ThermaCAM® E4
Infrared Camera

THERMACAM®
INFRARED CAMERAS

BUILDING DIAGNOSTICS

FIND | REPORT | REPAIR

FAST DETECTION FAST ACTION

ThermaCAM® P60
Infrared Camera

Infrared (IR) thermographic inspection is a powerful and noninvasive means of monitoring and diagnosing the condition of buildings. FLIR IR cameras set the industry standard for building diagnosis applications. They provide immediate documentation of as-built or post-restoration quality, post-casualty cause and origin data, plumbing and building envelope water leakage, post-flood and fire water-damaged material assessment, energy use inefficiency, and electrical problems.

Moisture and Mold

Moisture in building materials can destroy structural integrity and nurture mold and insect infestations. IR cameras distinguish between wet and dry materials by exploiting the thermal characteristic of wet materials to store heat very well and warm up or cool down more slowly than dry materials. Mold in particular is a growing concern for lenders, developers, producers of building materials, and building owners and investors because of the growing number of filings of health-related tort claims. Certain molds can cause a variety of adverse human health effects. The first step in mold remediation is to quickly and accurately locate and remove all sources of moisture. IR cameras can instantly image entire rooms, inspect places that can't be physically reached with moisture meters, reveal wet conditions behind surfaces such as enameled walls and wallpaper that don't readily water stain, track leaks to their source, monitor thedrying process, and confirm when a structure is dry.

ThermaCAM® E-Series
Infrared Camera

Post-Disaster Cause and Origin Investigations

To a building owner or an insurance company involved in a property damage settlement, clear images of normally invisible diagnostic evidence can be invaluable for planning the restoration effort and rationalizing settlements. After fires, IR cameras can quickly locate remnant hot spots, providing potentially valuable data for insurance companies' Cause and Origin investigations — and assure that a fire is truly extinguished (see back cover). For catastrophic storm water intrusion and plumbing failures, IR thermography can trace the influx of moisture to find the ultimate source of the incursion with little or no physical disassembly of the premises and minimal disturbance of inhabitants. During remediation and restoration, IR thermography can evaluate the progress of the drying process per accepted standards.[1] The availability of authoritative thermographic records can reduce or even eliminate the need for insurance representatives to make personal on-site inspections, and the thermographic record of the remediated property can protect against future frivolous claims.

Energy Efficiency

IR thermography is a well-accepted method of imaging and evaluating the state of electrical wiring, the thermal efficiency of building insulation, doors, windows and other penetrations, and the efficiency and condition of heating and cooling systems. Temperature anomalies revealing problems are rendered visible, enabling needed repairs to be made with confidence.

Fast Detection for Fast Action

FLIR ThermaCAM E-series and P-series IR cameras instantly capture and record high-resolution thermographic images on-board for downloading to a PC. They can also output full-motion infrared video in real-time to a video recorder.

Interchangeable lenses can accommodate all the working distances and target sizes you will encounter. Inspection reports can be produced in seconds with ThermaCAM Reporter™ software. ThermaCAM Image Builder software uniquely knits multiple thermographic images together to create a single composite image that can facilitate diagnosis and repair. There's no faster way to do a thorough building condition assessment.

Reliable, Accurate Diagnosis

- See and analyze the problem immediately.
- Trace hard-to-find moisture sources quickly and easily.
- Inspect with minimal building disassembly.
- Minimize disturbance of tenants.
- Capture thermographic images instantly.
- Output full-motion infrared video records in real-time.
- Create reports of inspection results in seconds.
- Select agencies and trades for restoration and repair with speed and assurance.
- Protect against frivolous complaints.
- Provide the basis for fair settlements.

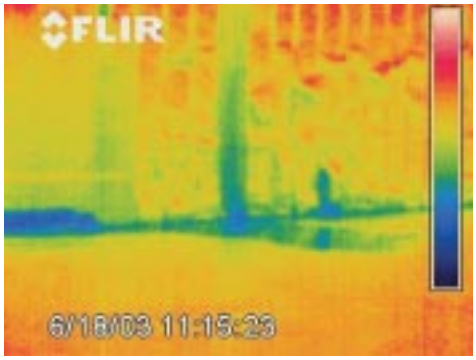
"With a FLIR ThermaCAM IR camera, you can see problems immediately and thoroughly document them quickly and easily."

Ron Lucier, Infrared Training Center

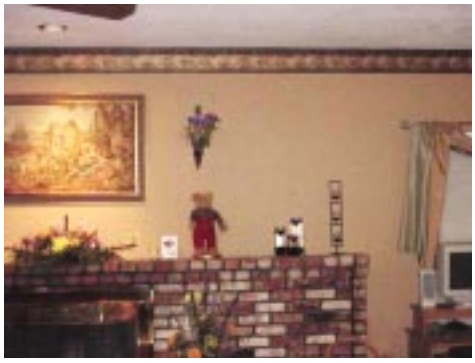
INFRARED IN ACTION

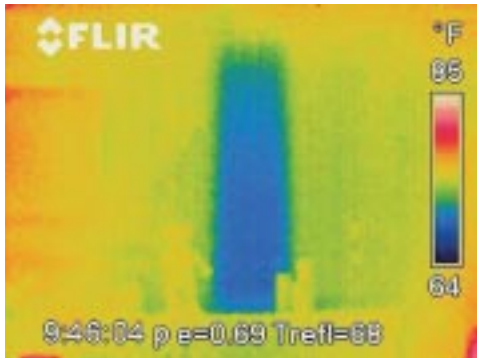
The thermogram (right) clearly shows a leaking bedroom ceiling (visible, left). The leak was assumed by the owner to originate in an upstairs marble-paneled bathroom in the $3 million home. The estimated cost to rip out and replace the marble to access the plumbing was estimated at $80,000! Further IR investigation absolved the bathroom and traced the source of the leak to a clogged weep hole under the threshold of a door leading to an upstairs porch.

The thermogram on the right shows water and moisture remaining from sprinklers that were activated during a fire that was knocked down about 11 hours earlier. Note how the IR thermography clearly identifies the wet areas in the insulation and building structure and on the floor by their relatively cooler temperatures.

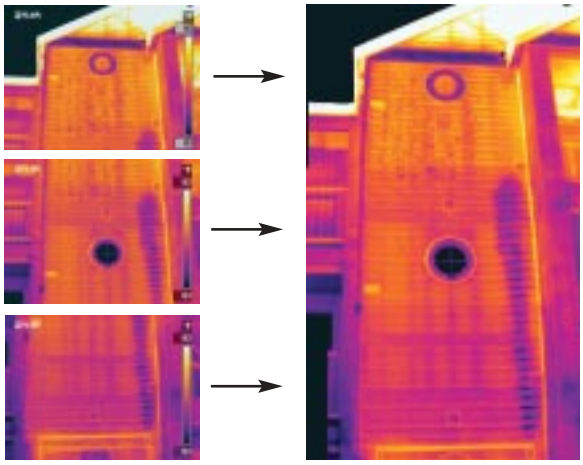


The occupant complained about a cold spot in this living room in a home that was insulated by a blow-in process from outside. The thermogram at right clearly identifies the source of the cold air as an uninsulated stud bay. By insulating the empty bay, the occupant can save significant costs in heating energy.





The thermogram of this vinyl-sided 3-floor apartment house clearly shows the path of a serious leak from a washing machine on the third floor, which is completely hidden within the wall. The thermographer used FLIR's ***Image Builder*** *software to automatically "stitch" the three individual thermographs into one fully thermographic collage.*



About FLIR Systems

With over 30 years experience and more than 30,000 of its IR cameras in use, FLIR is the undisputed global leader in infrared systems. From industrial to military applications, thermography professionals have made FLIR their number one choice. No other company offers such a wide range of infrared cameras, software, service, training and support.

FLIR's ThermaCAM series of thermal imaging cameras have long set the standard for thermographic testing and analysis. Today they are the most widely used non-contact temperature measurement infrared cameras in the world.

FLIR SYSTEMS™

The Global Leaders in Infrared Cameras

FLIR Systems, Boston
Americas Thermography Center
16 Esquire Rd.
North Billerica, MA 01862

1-800-464-6372
www.flirthermography.com

Cover photo: comstock.com
Photos: courtesy of Bill Weber

[1] Institute of Inspection Cleaning and Restoration Certification, Standard IICRC-S500; "Mold Remediation in Schools and Commercial Buildings," U.S. Environmental Protection Agency, 2001; "Healthy Homes Issues: Mold," U.S. Dept. of Housing and Urban Development, October 2, 2001.

INFRARED SUCCESS STORIES

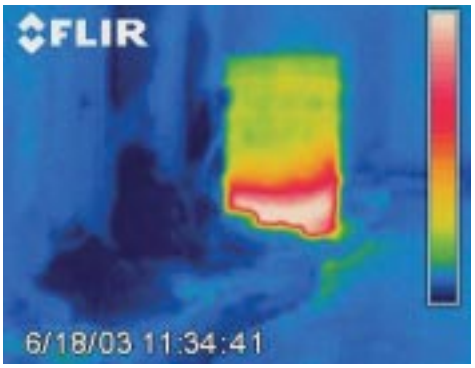
Explosion Averted By IR Thermography

Bill Weber, Four Star Cleaning and Restoration, a Disaster Kleenup Company

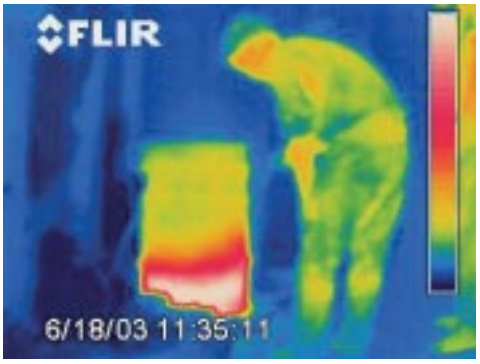
The morning after a serious electrical fire in a garment dying facility was knocked down by the fire department, Four Star Cleaning and Restoration was called in to perform an emergency services. Bill Weber, the firm's vice president, was onsite at 10:00 a.m. with a FLIR ThermaCAM ES.

Within the first hour on the job, a melted drum of black sulfur dye was cleaned up so that people could access the site. Weber then inspected the premises with his IR camera to document the condition of the structure, which had been soaked by the sprinkler system and fire department hoses. "We had to get the loss documented quickly for the insurance company's Cause and Origin consultant, who hadn't yet arrived on site," he said. "Four Star was selected as an Emergency Services Provider due in part to its owning an IR camera."

But in addition to the wet walls (shown in the third example on page 3), the camera revealed an unexpected thermal anomaly — a distinct source of heat within a closed 32-gallon drum containing sodium hydrosulfite. This chemical, which is used as a stripping agent in the dying process, reacts with water to produce poisonous hydrogen sulfide gas — and enough heat to cause spontaneous combustion and a potentially explosive condition. Some water had apparently penetrated into the drum during the fire control episode and triggered the reaction. Subsequently, a hazardous waste hauler, the fire department, a certified industrial hygienist, HAZMAT and County Health Services were called and disposed of the drum, narrowly preventing a possible second order catastrophe. The infrared camera visually documented the loss for the insurance company and fire cause analysis personnel.



The thermogram documents the dramatic level of heat being generated by the exothermic reaction of sodium hydrosulfite and water in a 32 gallon drum.



This thermogram dramatically reveals the general manager of the garment dying facility leaning toward the 32 gallon drum of hot sodium hydrosulfite. The property manager immediately summoned an industrial hygienist, who summoned the authorities.

The 55-gallon drum contains the 32-gallon drum of hot sodium hydrosulfite and a quantity of coolant water.

NEW!

Building Sciences certification course offered by the Infrared Training Center (ITC) — *the global leader in infrared training.*
Call 1 866 TRAIN IR for more information.