

HIDDEN MOISTURE IN YOUR FLAT ROOF | NOV. 2023

Hidden moisture is one of your roof's worst enemies. It wastes energy, eats away at your roof deck, and contributes to "sick building syndrome". Even worse, it spreads to more and more areas over time. Catch it early, though, and you can stop it with relatively inexpensive repairs.

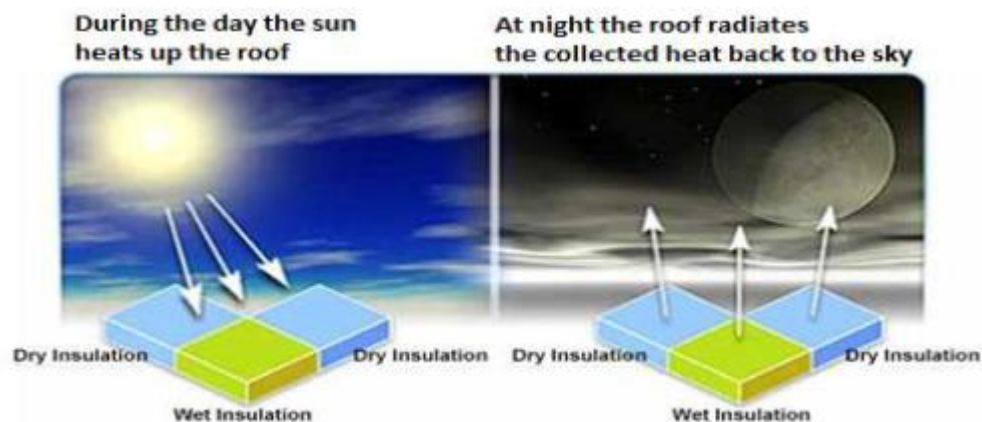
A qualified inspector starts with a visual inspection – looking for low points on a traditional built-up flat roof. These areas - known as valleys- are designed to guide the water to the roof drains. However, over time the roof decks can sag or deflect, allowing water to sit on the roof for continuous periods, instead of draining from the roof. If the top waterproofing layers are no longer continuous, then water can enter the roof system and stay trapped within the insulation and other components. This may result in interior leakage or even the growth of mold, mildew, or other conditions, that can lead to health issues for tenants.

Taking the guesswork out of roof analysis using scientific data and comprehensive reporting is an efficient process to understand the condition of your roof below what you can see. The roof system will provide the inspector clues on where to start using moisture-seeking tools. Moisture probes create a small and easily patchable hole and allow for a quick analysis of possible moisture in the multi-layered roof system. But single probes don't provide the whole story, and a building owner certainly doesn't want a multitude of probes resulting in the roof looking as if everyone who walked on it wore spiked golf shoes!

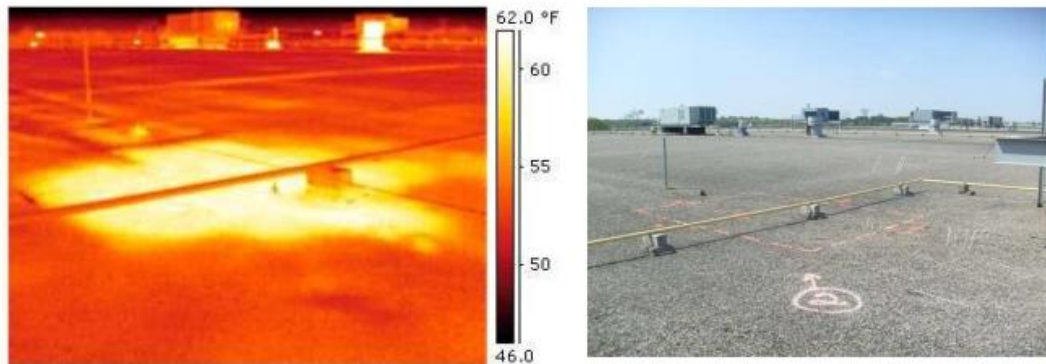


Moisture probe testing quickly confirms the presence of moisture.

Another diagnostic method is an Infrared Scan – this is non-penetrating and extremely reliable process. Here's how it works: during the day, the sun heats up the roof and at night it cools off. During this cooling cycle, moisture-damaged areas of the roof system cool slower than adjacent dry roofing materials. It's this dynamic thermal variation that allows the certified IR technicians to image and delineate thermally suspect areas for subsequent physical verification.



These sample photos illustrate the accuracy of the infrared camera when moisture is present in the roof system.



The bright area in the thermogram clearly defines the area of moisture in the roof system. These areas are mapped onto a roof plan for future reference and are part of the report shared with the building owner. The sensitive infrared scanner is used at night to detect temperature differentials across the roof - areas over wet insulation appear warmer than surrounding areas. This data provides the information needed to develop repair/replacement plans and related budgets.

Moisture probes are used to verify wet areas, and the results of the infrared survey are confirmed by taking core samples. Physical testing is necessary to measure the quantity of moisture at the core site and details of the roof construction. All roof cores and moisture probes must be repaired immediately to ensure water-proofing continuity.

Knowing the condition of your roof below the surface has many benefits. The most significant benefit is reducing lifecycle costs by helping the building owner/manager prevent the spread of moisture throughout the entire roof system, thus avoiding unnecessary tear-off and ultimately resulting in cost savings, energy savings, and reduced disruption for tenants of the facility. Once this data is compiled, a complex asset management plan and budget can be developed for the stakeholders to decide the best course of action for their facility and financial needs.

Article by [Tremco Roofing and Building Maintenance](#).

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