

THERMOGRAPHY

Flat Roof Thermography



Property Damage Restoration



Temporary Humidity Control



Property Damage Prevention



APPLICATION

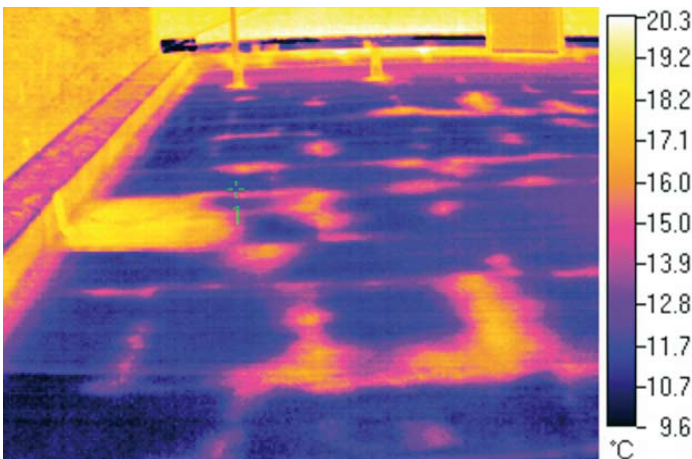
Overview

Infrared thermography can be used as a non-destructive method for leak detection in flat roofs. Using a thermal camera a qualified technician will scan the roof and monitor the difference in temperature between wet and dry insulation and water ingress. This will identify leaks and areas which may require further investigation.

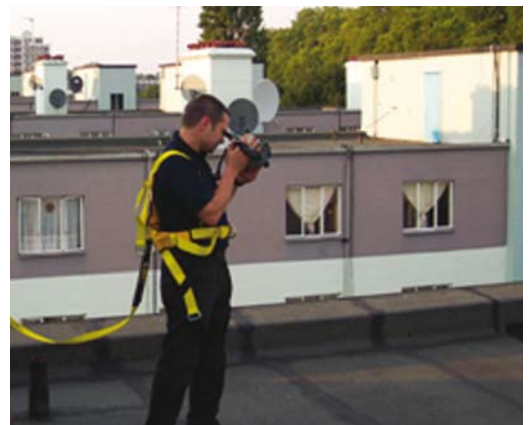
Munters recommend undertaking the survey either early in the morning or late at night, depending on environmental conditions, this allows enough time for the flat roof to have absorbed sufficient solar energy.

A typical flat roof has little or no water between the roof membrane and the insulation. When a leak occurs moisture enters the roof and is absorbed by the insulation or cracks between the non-absorbent material in the roof.

Dry materials heat up and cool down faster than wet material, resulting in a lower thermal capacity than water. Therefore water requires more heat to increase its temperature and takes longer to release its heat. During a sunny day wet insulation absorbs more energy than dry insulation, making it release more energy during the late afternoon and early evening. Munters use thermography to highlight such changes and identify both the source and extent of the moisture ingress.



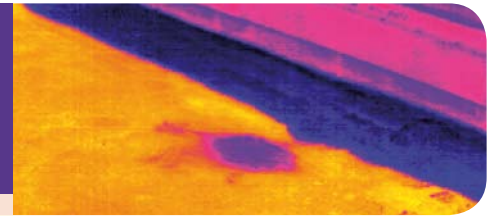
Typical asphalt roof.





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PROCEDURE

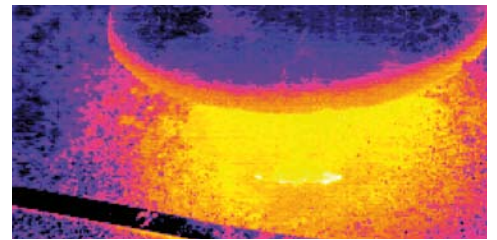
Using proven techniques and trained technicians who have passed Infra Red Thermography courses at level one and two qualifications, Munters are able to achieve the best possible thermography results.

The thermal camera requires a direct line of sight in order to obtain a true reading, so prior to the survey all obstructions will need to be removed. A technician will also contact the customer prior to the survey to discuss the condition of the roof, and establish whether there have been any issues with leaking.

Bad weather may hinder the results of the survey; therefore the weather conditions for the customer's site are checked two days in advance of the visit. If bad weather

is forecast an alternative date for the survey will be arranged with the customer.

Two technicians (a H&S requirement) will undertake a visual inspection of the roof area during daylight hours, taking digital pictures of the roof, along with a roof plan (detailed measurements). The thermal survey of the roofing area will be carried out several times as the temperature difference will vary depending on internal and external environmental conditions, which may affect the temperature of the roof membrane. The thermal inspection is then referenced against the initial daylight inspection. An internal inspection of the property is also recommended, to assess any internal damage within the property and to assist in tracking the water ingress.

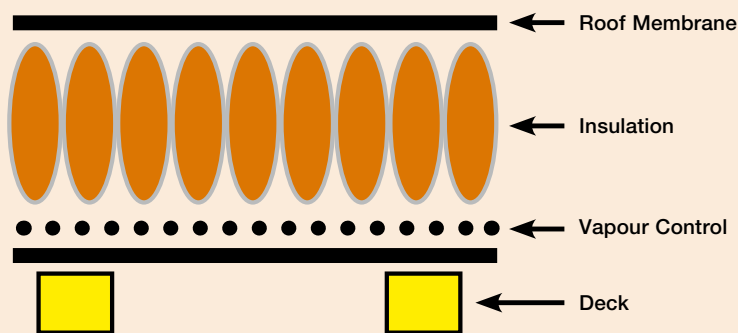


A leak site around a vent stack.

SERVICE

Following the survey a full and detailed report will be issued including digital and thermal images together, along with recommendations. Munters offer a range of leak detection services that deliver real cost advantages by effectively detecting hidden leaks and, in the majority of cases preventing them.

A WARM DECK ROOF CROSS-SECTION - TYPICAL UK CONSTRUCTION



Roof deck material can be steel, wood or concrete. The material of the roof deck does not affect the thermal survey; however it can affect the level of damage that a property's internal ceilings may sustain. Insulation comes in a variety of thicknesses and is either absorbent or non-absorbent, demonstrating varying effects when subjected to moisture.

The membrane is the waterproof material between the outside environment and the internal part of the building. It should be durable enough to withstand wind and external loads and is typically bonded with layers of asphalt. When this waterproof material becomes damaged, moisture penetrates the roof, causing leaks.

BENEFITS

The benefits of a Munters Thermal Survey include:

- Cost savings, as only the area of concern needs repair or replacement
- Reduced material and labour costs
- A more efficient repair
- Reduced impact on the environment
- The ability to note areas of potential concern and monitor areas of deterioration via an annual inspection
- The provision of a predicted maintenance programme.