



**Qualitative On-Roof
Roof Moisture
Infrared Thermographic Survey
Of
Industrial Services Inc.
At
Building Material Center
For
Mr. Smith
December 1, 2014**

Roof Moisture Survey on December 1, 2014

December 18, 2014

Construction Central
Building Material Center
Big City, TX 80225

Mr. Smith:

The roof of Building Material Center, Big City, TX was the subjects of an infrared (IR) survey on the night of December 1, 2014. The weather was Clear and approximately 70 degrees, providing good infrared imaging conditions.

This report includes:

- RoofScanIR™ digital report with explanations of the method,
- Conditions at the time of the survey,
- A map marked with the finding locations,
- Individual report pages of all suspect wet areas.

Advanced Infrared, an Authorized RoofScanIR™ Contractor, was retained for an infrared survey of the roof in an effort to identify areas of suspect moisture and to mark the areas for further review. This report is based on information obtained at the site at the given date and time. We marked an outline of identified areas of moisture with marking paint directly on the roof and documented our findings with a thermograph and photograph of the area. The purpose of any infrared thermography service is not to locate or identify leak sources. Our inspection is designed to comply with ASTM Standard C1153 - "Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging" with the exception of core sampling.

This report is for the exclusive use of our Client and is not intended for any other purpose. The report is based on the information available to us at this time as described in the report. Should additional information become available at a later date, we reserve the right to determine the impact, if any, the new information may have on our discovery and recommendations and to revise our opinions and conclusions if necessary and warranted. There may specific areas and items that were inaccessible during our survey. We can make no representations regarding conditions that may be present but were concealed or inaccessible during the survey. With access and an opportunity for inspection, additional reportable conditions may be discovered. Inspection of the inaccessible areas will be performed at an additional cost after access is provided.

Analysis and Recommendations

We recommend that your roof maintenance team carefully review this report. Then, with reference to the images contained herein and the marked areas on the roof, these areas should be physically located and given a thorough visual examination. When warranted, these areas should be subjected to a destructive test (core sample) to confirm the analysis. We recommend a roofing profession conduct core samples on the roof(s) as needed. Destructive probes and roof cores will be taken and repaired by others and are not in this scope of our work. Services

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such as interpretation of thermal patterns documented in this report and any remedial and replacement recommendations should be performed by a knowledgeable roofing consultant or comparable roofing expert.

Our reports are designed to be clear, concise and useful. Please review it carefully. If there is anything you would like us to explain, or if there is other information you would like, please feel free to call us as we would be happy to answer any questions.

Sincerely,



Jeff Hoffman
Advanced Infrared
CIT Level II, 8067
832.465.1190
jeff@advanced-ir.com
Authorized RoofScanIR™ Contractor

Roof Moisture Survey Info

Client: Construction Central
Building Name: "Building Material Center"
Client representative present at inspection: Mr. Smith
Building Location: Building Material Center, Big City, TX
Certified Infrared Thermographer, CIT#: 8067
Survey Date: December 1, 2014
Survey Start Time: 7:30 pm
High ambient temperature of the day: 80
Daytime weather conditions: Sunny
Last recordable rainfall: 11/14/2014
Weather conditions at survey start time: Clear
Wind speed/direction at survey start time: 5 mph
Ambient temperature at survey start: 70
Imager used: Flir T400
Roof deck: Concrete
Insulation: Wood Fiber
Membrane: EPDM
Membrane attachment: Mechanically Attached
Notes:

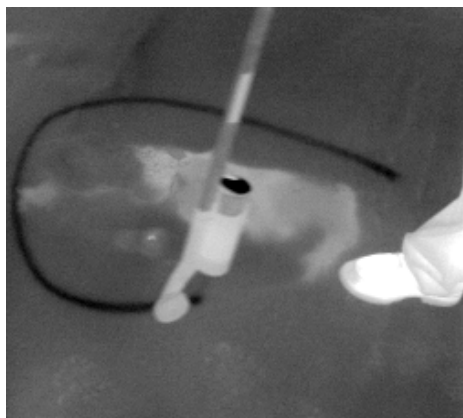
Understanding Building Roof Infrared Imagery

Infrared imagery is often a grayscale picture whose scales (or shades of gray) represent the differences in temperature and emissivity (opposite of reflectivity) of objects in the image. As a general rule, objects in the image that are lighter in color are warmer, and darker objects are cooler. No object in the images is detected via visible light wavelengths (400-700 nanometers) rather, only from infrared wavelengths in the 3000-5000 nanometers or 8000-14000 nanometers range. Lights and other relatively hot objects are very evident, but as a result of their heat...not light emissions.

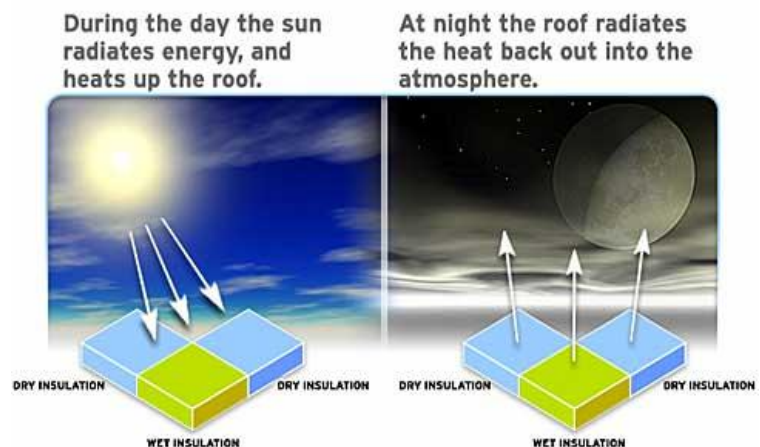
When an image is taken with an infrared camera, it is often recorded onto videotape and/or digitally saved to an on-board storage device. The image may be then modified in a number of ways to enhance its value to the end user. Imager files are digitized, saved and converted to jpeg images, then adjusted for color, contrast and brightness before being scaled and placed into a report file. Report files are then printed in high quality and saved to a CD-ROM.

During the day, the sun radiates energy onto the roof surface and into the roof substrate, and then at night, the roof radiates this heat back into outer space. This is called radiational cooling. Areas of the roof that are of a higher mass (wet) retain this heat longer than that of the lower mass (dry) areas. Infrared imagers can detect this heat and "see" the warmer, higher mass areas, during the "window" of uneven heat dissipation.

We scan the roof with sensitive infrared cameras to detect the sources of heat and record them for later analysis. Since we can "see" all areas of a different mass immediately, we can then mark the roof and/or save infrared images for report use.



Suspect wet areas marked directly on the roof with marking paint.



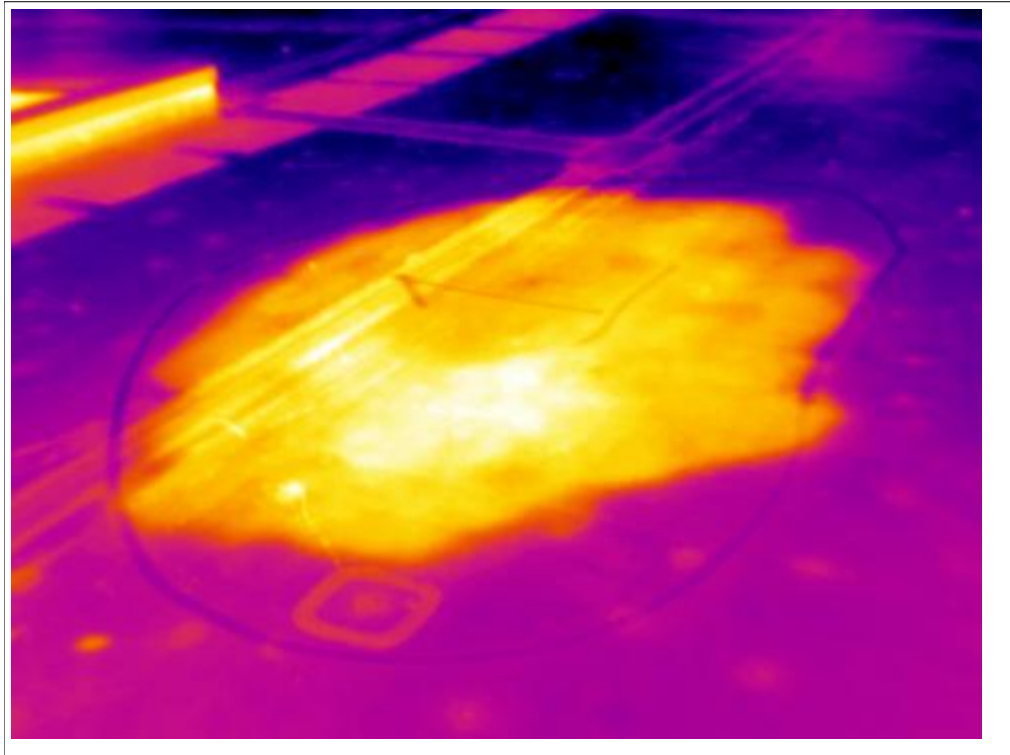
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Aerial View of Roof



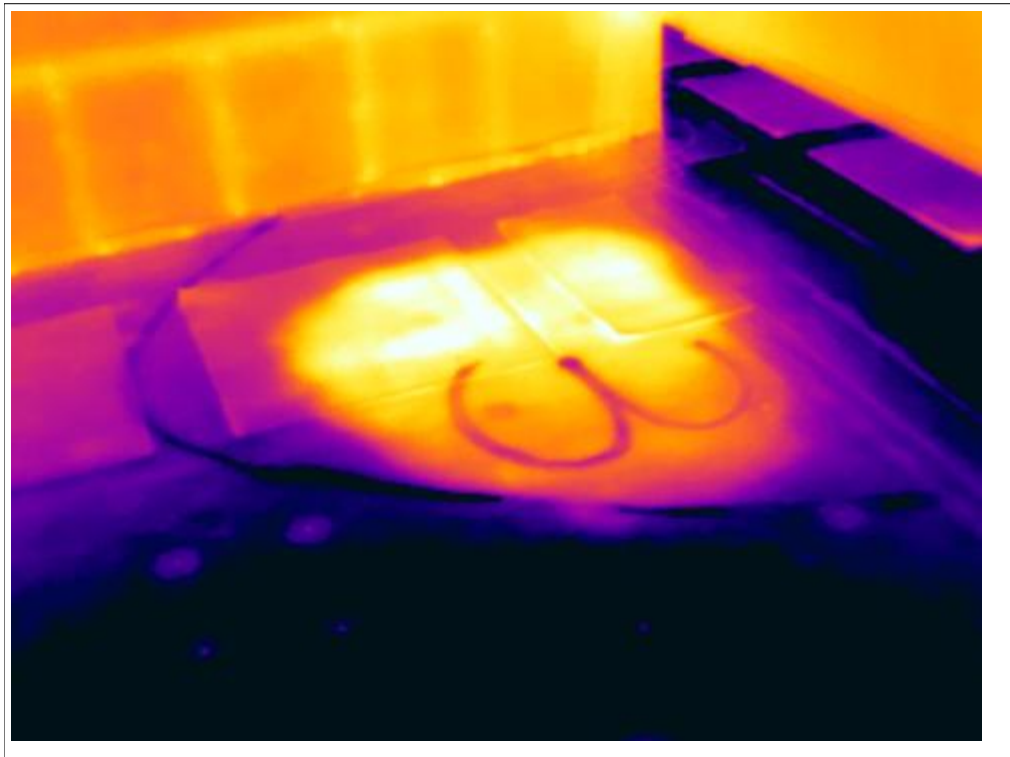
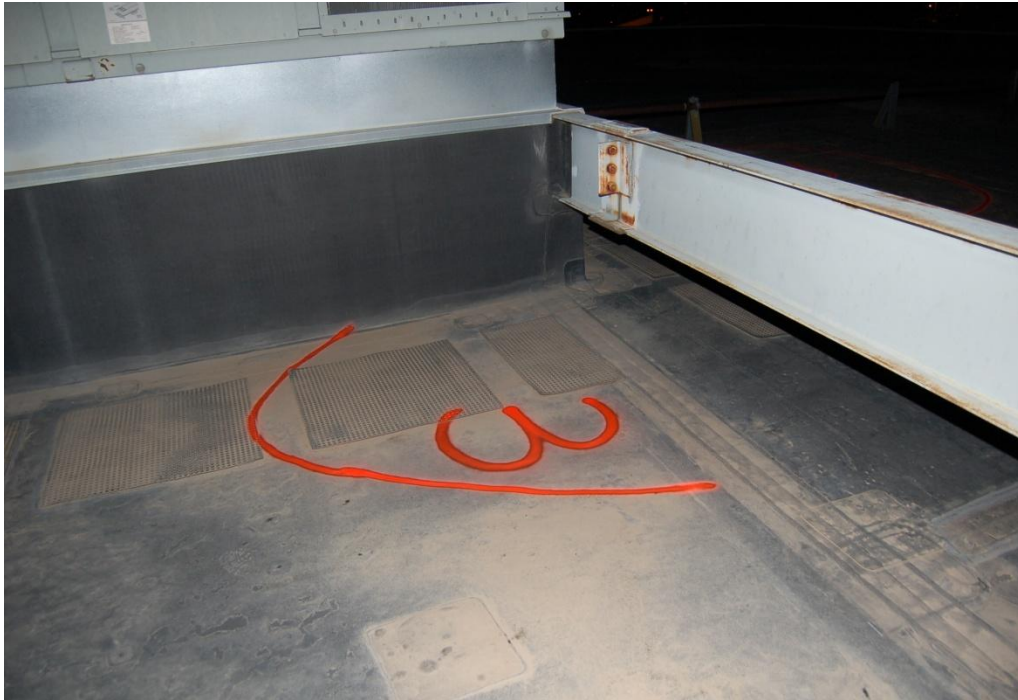
Roof Moisture Survey on December 1, 2014

Notes: Probable wet area marked directly on the roof



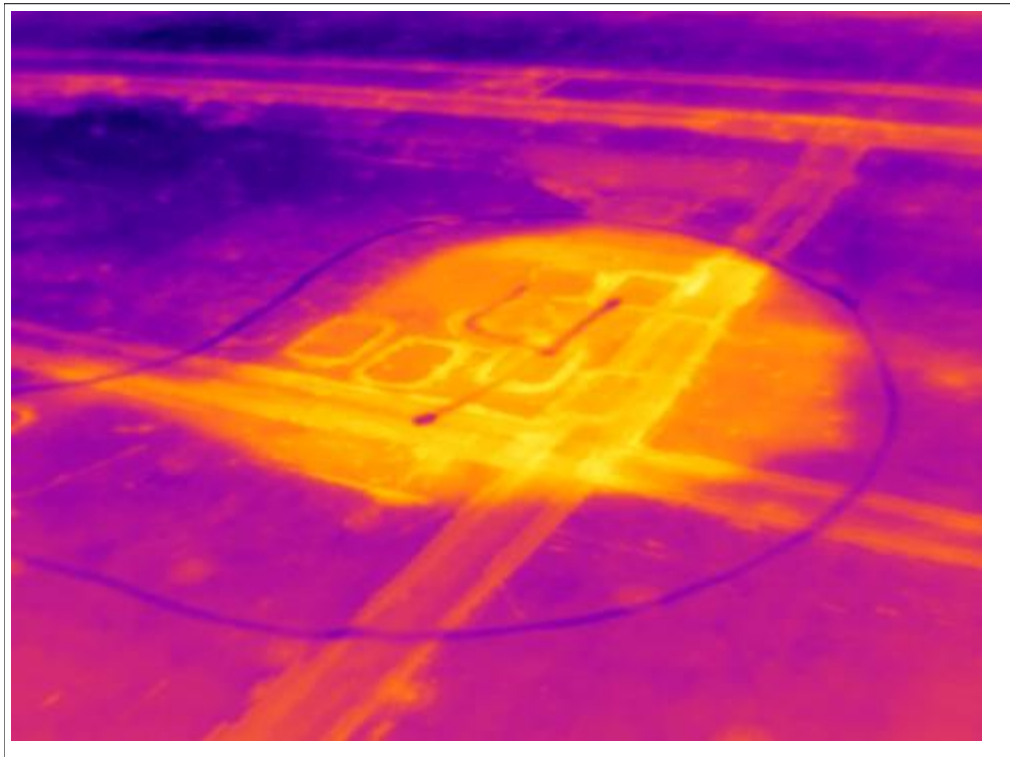
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