JERSEY INFRARED CONSULTANTS

P.O. Box 39
Burlington, NJ 08016
Phone: (609) 386-1281
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INFRARED FLAT ROOF MOISTURE SURVEY

for

ABC Company
123 Main Street
Anytown, USA

at

ABC Company
Main Street
Anytown, USA

December 31, 2012

Our Job Number: 12-2906.4

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December 31, 2012

Mr. Smith
ABC Company
123 Main Street
Anytown, USA

RE: INFRARED FLAT ROOF MOISTURE SURVEY REPORT
OUR JOB NUMBER: 12-2906.4

Dear Mr. Smith:

Here is our completed report and CD-ROM for the Infrared Flat Roof Moisture Survey performed at the ABC Company facility located at 123 Main Street in Anytown, USA on December 5, 2012.

Thank you for this opportunity to serve you. If you have any questions or if we can be of further assistance, please feel free to call.

Very truly yours,

MC
Level III
Infraspection Institute Certified Infrared Thermographer

MC:clt
Enclosure

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INTRODUCTION TO THE INFRARED FLAT ROOF MOISTURE SURVEY

Infrared thermography is a form of non-contact, non-destructive testing used to detect and document thermal patterns and associated temperatures across a given surface. For commercial roofing systems, infrared inspections can identify and document latent moisture.

On a sunny day, solar energy is absorbed by the roof surface and is transferred to the insulation layers of the roof. While dry insulation resists heat, wet insulation readily absorbs it. Since wet insulation has a greater thermal capacity, those areas of the roof which contain wet insulation cool off much more slowly than those areas of the roof which contain dry insulation. By utilizing our infrared imagers, Jersey Infrared Consultants are able to locate these areas of wet insulation.

Our Infrared Surveys are performed by Certified Thermographers using a portable infrared imaging system called FLIR ThermaCAM. This equipment detects infrared energy emitted from an object and converts it into an image which is displayed on a monitor screen.

Because infrared energy is a direct and proportional function of temperature, the displayed image is designed to depict temperature levels on the monitor. This thermal image looks very similar to a black and white television picture where the various shades of gray represent different temperature levels throughout the chosen temperature range. Black corresponds to a lower temperature, and white indicates a higher temperature. In the color mode, colors are matched to the reference temperature bar at the side of the Thermogram. Colors which appear closer to the top of the reference bar correspond to higher temperatures. Colors appearing closer to the bottom of the reference bar correspond to lower temperatures.

Our FLIR ThermaCAM equipment has the capability to sense object temperatures from -10° Celsius to +1500° Celsius, with sensitivity of as little as 0.07 Celsius degrees.

When an area of the roof with an elevated temperature is located, a moisture probe is used to verify the presence of moisture. If moisture presence is confirmed, the perimeter of the damaged area is then outlined with spray paint on the roof surface.

Once the size and location of the problem area have been noted, a photograph is taken of the image displayed on the FLIR ThermaCAM monitor. These Thermograms, along with a standard photograph and our problem definition, provide you with the necessary information to correct the problem before it becomes serious.

As soon as the problem areas have been located and identified, plans can be made to repair these areas.

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December 31, 2012

ABC Company
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THERMOGRAPHER'S COMMENTS
OUR JOB NUMBER: 12-2906.4

On December 5, 2012 an Infrared Flat Roof Moisture Survey was performed at the ABC Company located at Main Street, Anytown, USA.

The Survey covered half of the roof.

This report contains a scaled map of the roof with the moisture-damaged areas marked in yellow. These yellow areas correspond to the areas of the roofing system which contain moisture. All moisture-damaged areas of the roof are outlined with yellow spray paint on the roof surface. Also included in this report are Thermograms and control photographs of the moisture-damaged areas.

The Survey was performed by an Infraspection Institute Certified Infrared Thermographer using a ThermaCAM PM390, Thermal Imaging System, Serial #18820.

WEATHER CONDITIONS: On December 5, 2012, daytime skies were mostly sunny with highs in the mid 50's. Evening low temperatures were in the mid 30's and skies were partly cloudy. Winds were light at 5 to 10 miles per hour.

The latest precipitation prior to the start of our Survey occurred on November 27th.

FINDINGS: One area of moisture damage was found on the night of our Survey. Moisture probes confirmed the presence of moisture in the outlined area. The approximate percentage of moisture-damaged roof is as follows:

Section A 22%

An individual breakdown of each roof section appears on the following Roof Data Sheets.

DISCUSSION: It is impossible to determine when moisture infiltration occurred. The absence of leaks in some areas may be due to the travel of moisture on the deck to another location where it could leak into the building.

PROGNOSIS: Since this is the first time we have surveyed the roof, it is impossible to predict the rate of deterioration and future performance of the roofing system. While some of the wet areas may not leak for some time, it is likely that they will expand, causing building heat loss and/or solar gain, and adding weight to the roofing system.

RECOMMENDATIONS: We recommend that the moisture-damaged areas be ripped up and replaced. Should a decision be made to replace only the moisture-damaged areas, an area at least one foot wider than the painted outlines should be replaced to ensure that all moisture damage is removed. Since some of the areas may enlarge by the time repairs are made, the roofer should remove all moisture damage found.

Should a decision be made to install a new roof over the existing roof, all areas of moisture damage should be removed prior to installation of the new roof.

This report defines the extent and location of moisture damage detected in the roofing system at the time of our Infrared Survey. No information regarding the structural integrity of the building, the roof deck or the roof membrane is provided or implied in this report.

All invasive test sites on built-up roofs have been repaired in accordance with currently accepted industry practices. Care should be taken not to disturb these areas in any manner which might compromise their watertight integrity.

Many factors, such as sunlight, precipitation, wind, foot traffic and building movement, can affect the roof over a short period of time. Periodic Infrared Flat Roof Moisture Surveys will detect beginning problems and can extend the life of the roofing system.

We recommend another Infrared Flat Roof Moisture Survey of the entire roof once the necessary repairs have been completed. Infrared Surveys are then recommended once a year as part of a preventive maintenance program.

If you should have any questions or if we can be of further assistance, please feel free to call.

MC
Level III
Infraspection Institute Certified Infrared Thermographer

MC:clt

ABC Company
123 Main Street
Anytown, USA

Our Job Number: 12-2906.4

ROOF DATA SHEET

LOCATION: Section A

ROOF CONSTRUCTION:

Deck:	Corrugated Metal
Vapor Retarder:	No
Insulation:	Polyisocyanurate
Membrane:	Built-up
Flood Coat:	None
Aggregate:	No

CORE SAMPLE DATA:

Designated on Roof:	C-1
Core Sample Size:	4"
Core Sample Taken By:	MC
Moisture Present:	Yes
Date Taken:	12/5/12

GENERAL ROOF DATA

Age:	Unknown
Condition of Membrane:	Fair
Patched Areas:	Several; large in size, scattered throughout
Blistered Areas:	None observed
Drainage Condition:	Fair
Roof Surface:	Dry
Debris Present:	None observed
Roof Size:	7,200 sq. ft. (approx.)
Number of Wet Areas:	1
Total Area Moisture Damage:	1,600 sq. ft. (approx.)
Percentage Moisture Damage:	22% of area scanned (approx.)

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123 Main Street
Anytown, USA

Our Job Number: 12-2906.4

ROOF DATA SHEET

LOCATION: Section A

ROOF CONSTRUCTION:

Deck:	Corrugated Metal
Vapor Retarder:	No
Insulation:	Polyisocyanurate
Membrane:	Built-up
Flood Coat:	None
Aggregate:	No

CORE SAMPLE DATA:

Designated on Roof:	C-2
Core Sample Size:	4"
Core Sample Taken By:	MC
Moisture Present:	Yes
Date Taken:	12/5/12

GENERAL ROOF DATA

Age:	Unknown
Condition of Membrane:	Fair
Patched Areas:	Several; large in size, scattered throughout
Blistered Areas:	None observed
Drainage Condition:	Fair
Roof Surface:	Dry
Debris Present:	None observed
Roof Size:	7,200 sq. ft. (approx.)
Number of Wet Areas:	1
Total Area Moisture Damage:	1,600 sq. ft. (approx.)
Percentage Moisture Damage:	22% of area scanned (approx.)

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Anytown, USA

Our Job Number: 12-2906.4

ROOF DATA SHEET

LOCATION: Section A

ROOF CONSTRUCTION:

Deck:	Corrugated Metal
Vapor Retarder:	No
Insulation:	Polyisocyanurate
Membrane:	Built-up
Flood Coat:	None
Aggregate:	No

CORE SAMPLE DATA:

Designated on Roof:	C-3
Core Sample Size:	4"
Core Sample Taken By:	MC
Moisture Present:	Yes
Date Taken:	12/5/12

GENERAL ROOF DATA

Age:	Unknown
Condition of Membrane:	Fair
Patched Areas:	Several; large in size, scattered throughout
Blistered Areas:	None observed
Drainage Condition:	Fair
Roof Surface:	Dry
Debris Present:	None observed
Roof Size:	7,200 sq. ft. (approx.)
Number of Wet Areas:	1
Total Area Moisture Damage:	1,600 sq. ft. (approx.)
Percentage Moisture Damage:	22% of area scanned (approx.)

Area/Picture No 1 **Job Number** 12-2906.4 **Date** 12/5/12

Ambient Temp 45 °F **Location** Section A

Damage Type Moisture

Area Description

Overall size: 1,600 sq. ft. (apx.)

Previously patched: Yes

Blisters present: No

Moisture Test Results

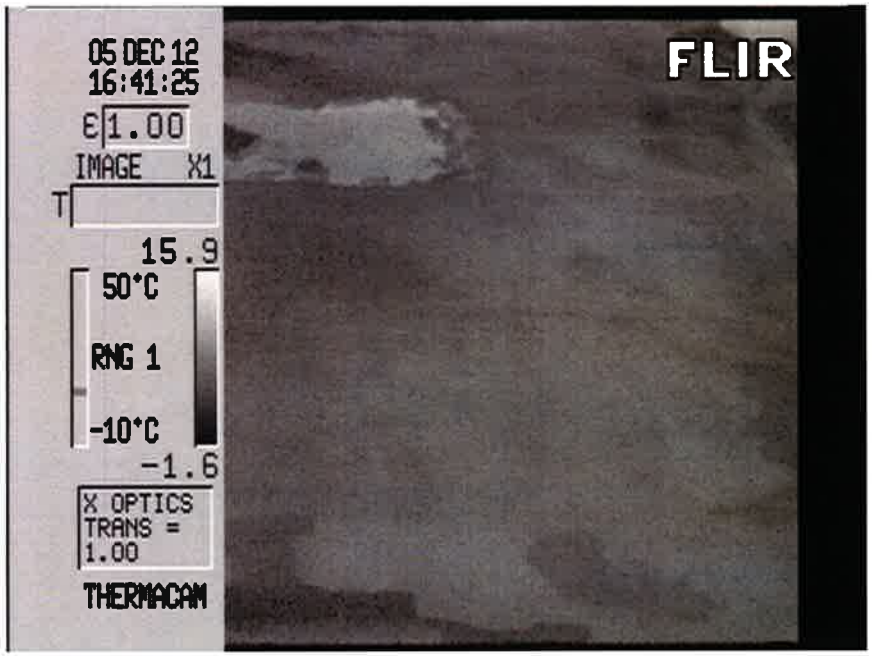
Moisture probe: Positive

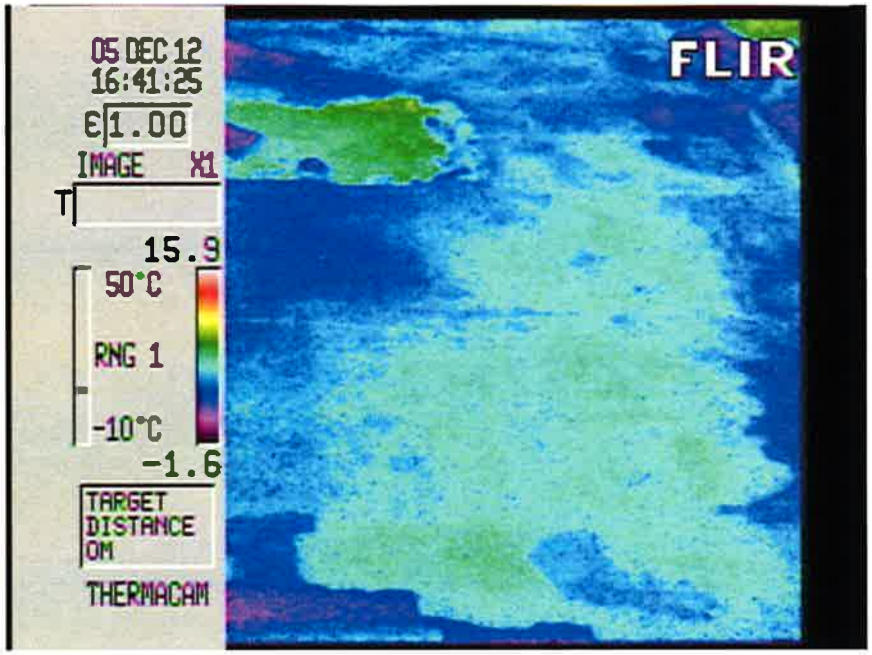
Core sample: Positive*

Other: N/A

Comments *3 Cores

C-1 Pos.
C-2 Pos.
C-3 Neg.





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Our Job No. 12-2906.4