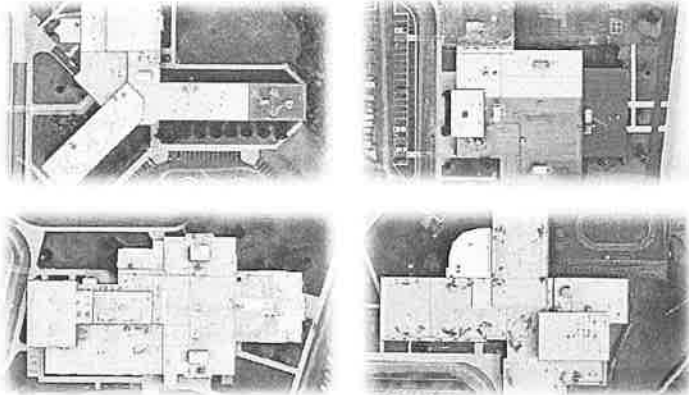


2149 Potter Rd. E.
Traverse City, MI 49696

Summit Hill SD 161

*Hilda Walker, Frankfort Square, Indian Trail,
& Arbury Hills - 2/15/23*



Prepared for:

20100 S. Spruce Drive
Frankfort, IL 60423

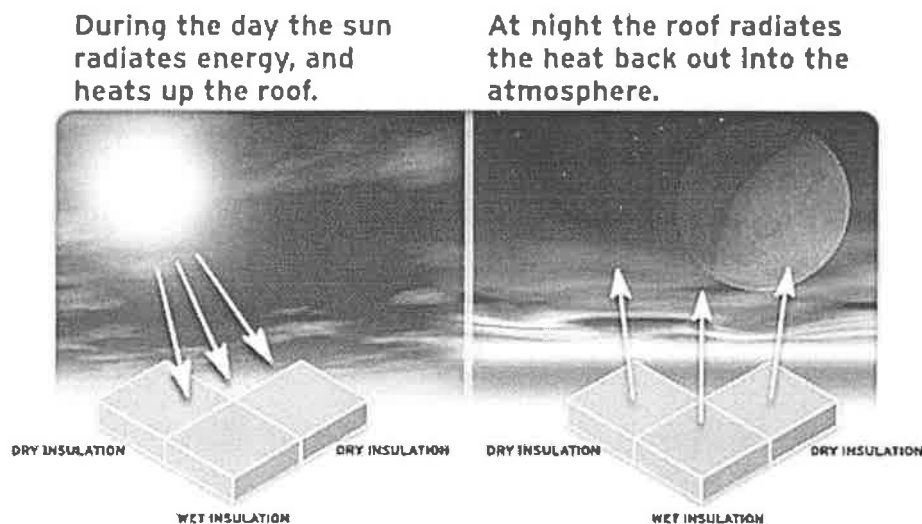
Understanding Building Roof Infrared Imagery

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.

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.

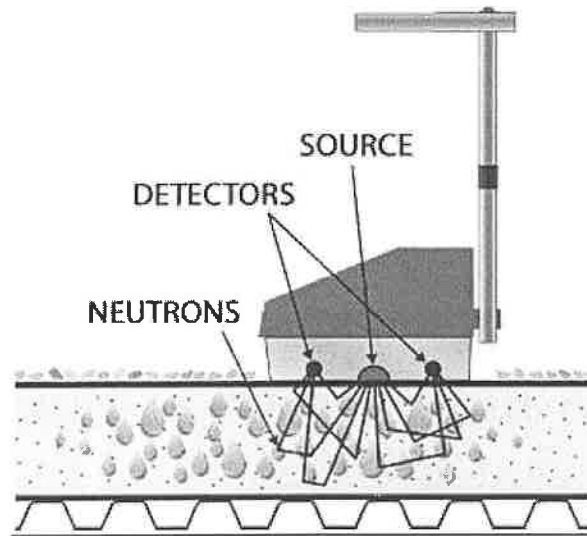


Understanding Nuclear Surveys

A nuclear roof moisture survey is the only effective method for locating areas of wet insulation within a ballasted roof system or multi-layered roof assembly.

A nuclear gauge is used to detect varying levels of hydrogen ions within the roof system, with hydrogen being most abundant in wet materials. Readings are taken in conjunction with physical sampling to determine a baseline reading for dry materials. Typically readings are taken on a 10'x10' grid pattern and transferred to a scaled roof plan showing a visual representation of the wet areas. Readings over the dry baseline benchmark indicate damp to wet materials, with moisture content increasing with higher readings.

Core samples are taken to determine the exact composition of all materials and to verify the results of the scan. A written report and corresponding scaled roof plan are then provided, summarizing all findings and showing the locations and amounts of wet insulation.



PRE-SCAN NOTES

Prior to the inspection, roof history and composition was discussed with the inspection crew.

WEATHER CONDITIONS

Scan Date	February 15 th , 2023
Evening Temp.	39°F - Cloudy
Wind Speed	WSW @ 9MPH

Roof surface was dry, and there was some debris on the roof.

INSPECTION

The roof was thermally & Nuclear inspected by Len Simkins.

EQUIPMENT USED

Fluke TI-400, Troxler 3216, & DJI Mavic Pro 2



Inspector: Len Simkins

Phone: (231) 590-9899

This report provides the inspector's opinion of the condition of the elements inspected. The findings are based on a limited time/scope inspection performed according to the terms of Infrared Roofing Technologies and in a manner consistent with property inspection industry standards. The inspection is limited to readily accessible systems or components of the property. No guarantees are implied with respect to future deficiencies or conditions. No engineering, geological, design, environmental, biological, health related, or code compliance evaluations of the property were performed.

The information in this report was prepared exclusively for the named client and/or their authorized representative. The report, including supplemental information and addenda should be reviewed in its entirety.

Comments:

Overall, the roofs had a total of 5,332 SF of wet insulation which is detailed in the report. For each spot, please refer to the map for the location. I would recommend regularly cleaning your drains and removing the debris off the roof itself. Thank you for allowing Infrared Roofing Technologies to perform an infrared inspection at your facility. If you have any questions, please do not hesitate to call or e-mail me.

Table of Content

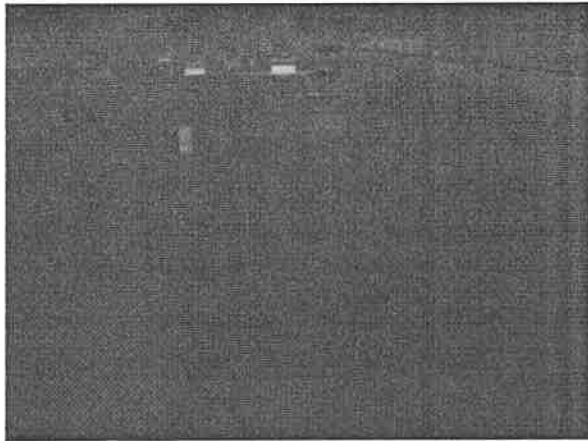
• Hilda Walker (Dry)	6-18
• Frankfort Square (Dry)	19-29
• Indian Trail (5,332 SF Wet)	30-35
• Arbury Hills (Dry)	36-47
• Core Report	48

Thanks again -

Len Simkins

RSO & Level 2 Thermographer

Hilda Walker



IR_08571.IS2
2/15/2023

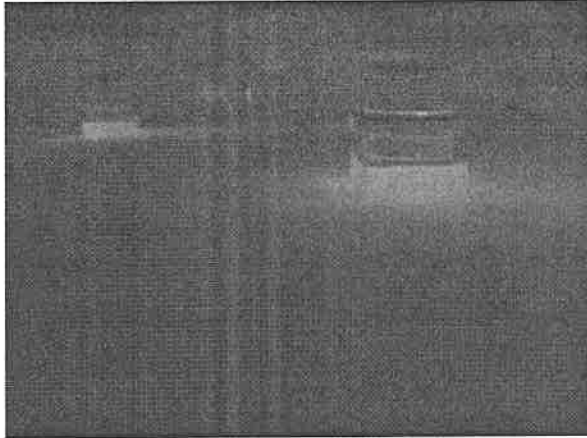


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	27.5°F to 56.9°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08572.IS2
2/15/2023

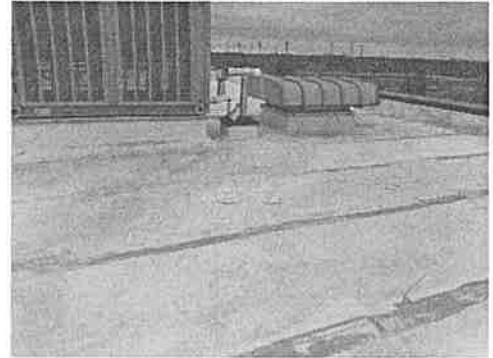


Visible Light Image

Image Info

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Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



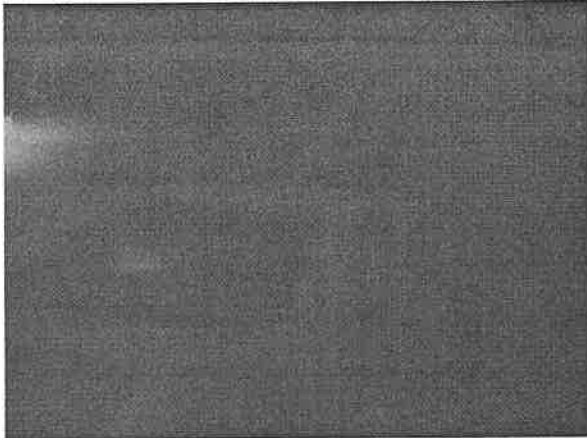
Visible Light Image

IR_08573.IS2
2/15/2023

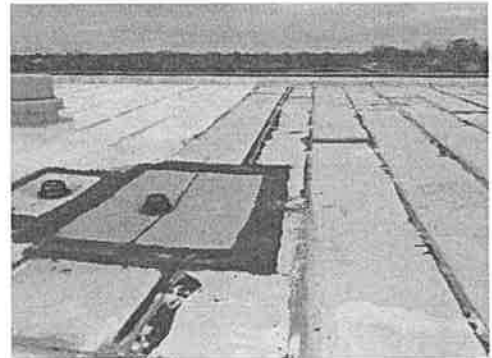
Image Info

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Emissivity	0.98
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Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08574.IS2
2/15/2023

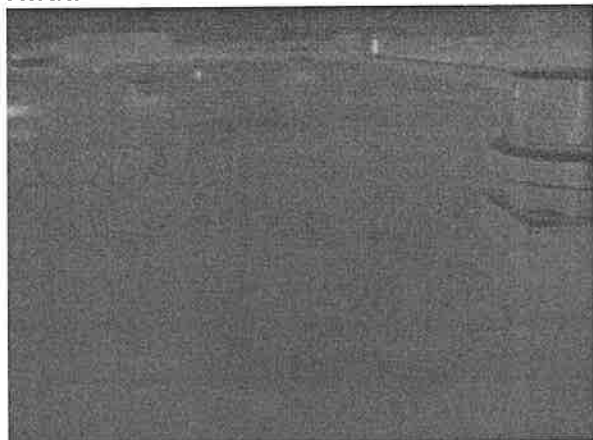


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	29.8°F to 54.0°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



Visible Light Image

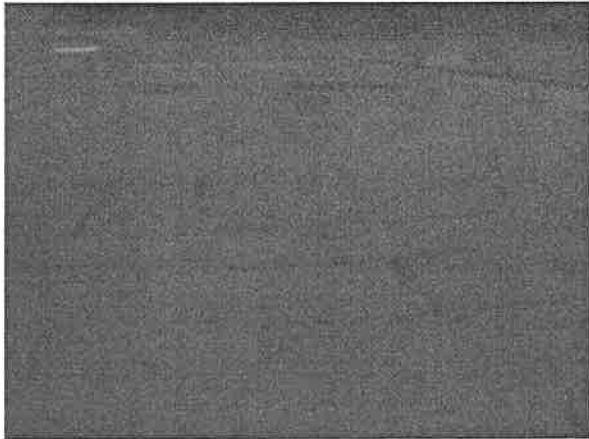
IR_08575.IS2

2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	26.7°F to 47.8°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08577.IS2
2/15/2023

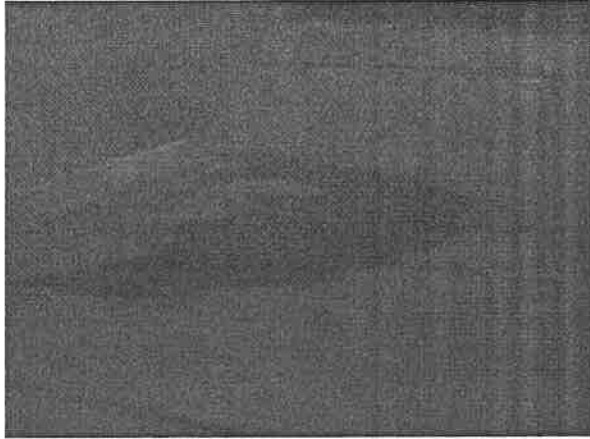


Visible Light Image

Image Info

Background temperature	40.0°F
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Camera Model	Ti400
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Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



Visible Light Image

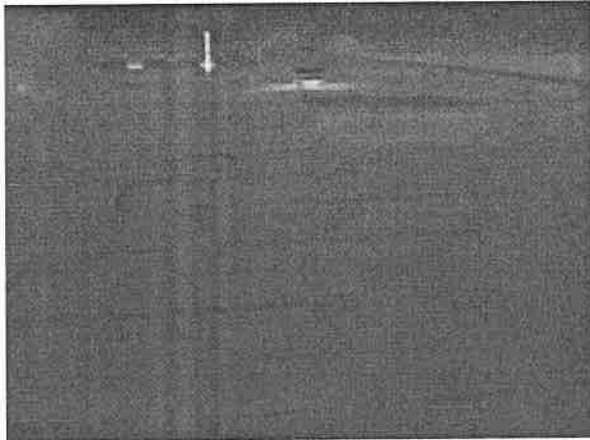
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2/15/2023

Image Info

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Image Range	28.3°F to 44.9°F
Camera Model	Ti400
IR Sensor Size	320 x 240
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Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08579.IS2
2/15/2023

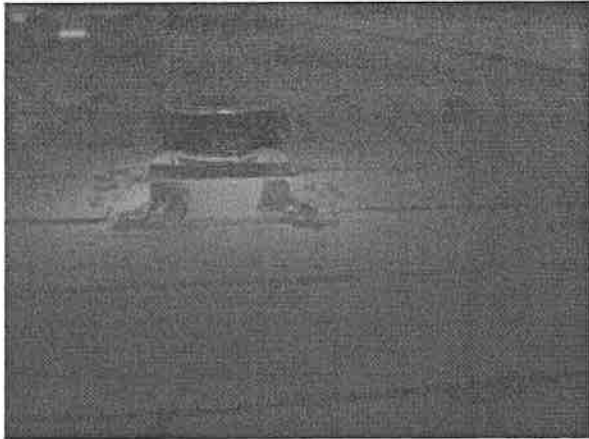


Visible Light Image

Image Info

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Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08580.IS2
2/15/2023

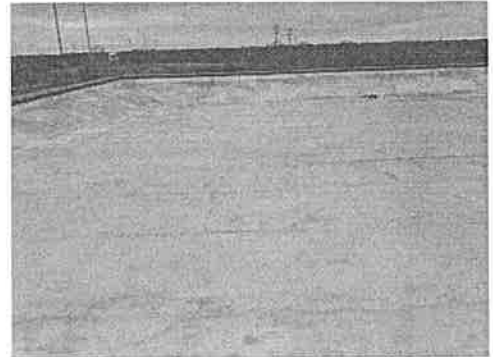
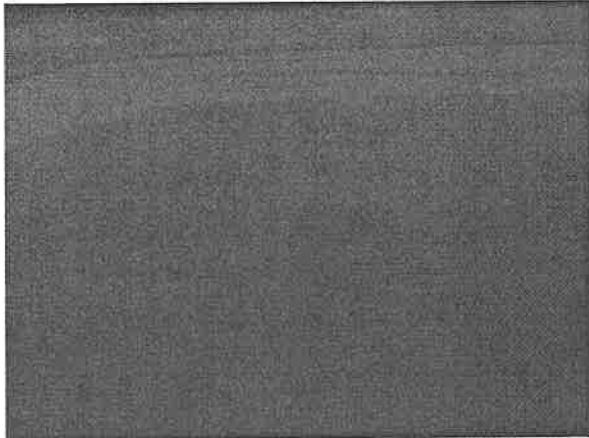


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	26.1°F to 60.5°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



Visible Light Image

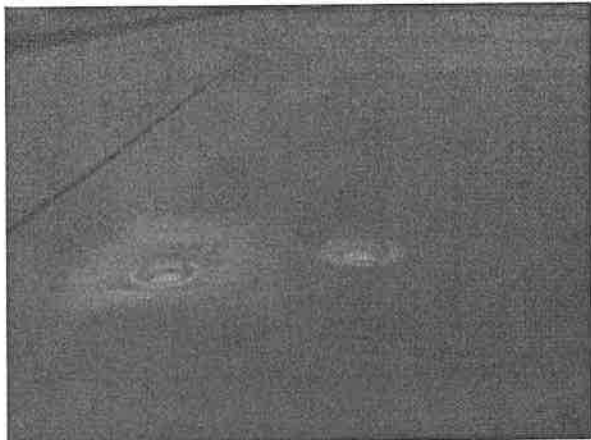
IR_08581.IS2

2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	28.9°F to 40.2°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08582.IS2
2/15/2023

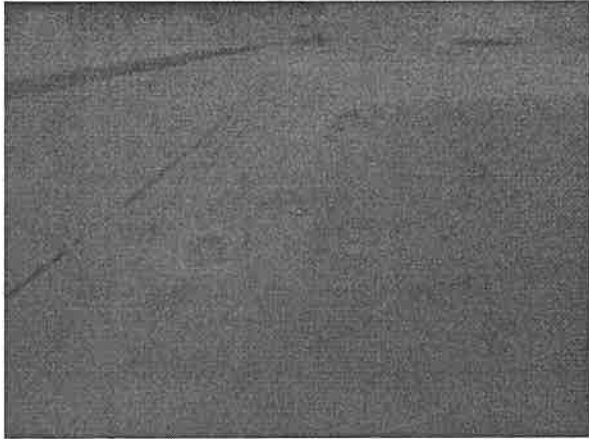


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	30.6°F to 45.3°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08585.IS2
2/15/2023

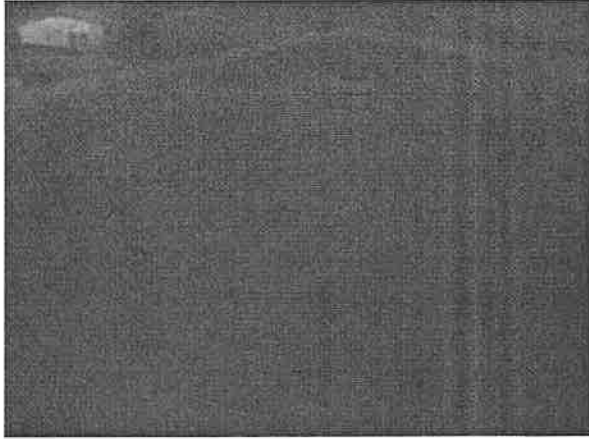


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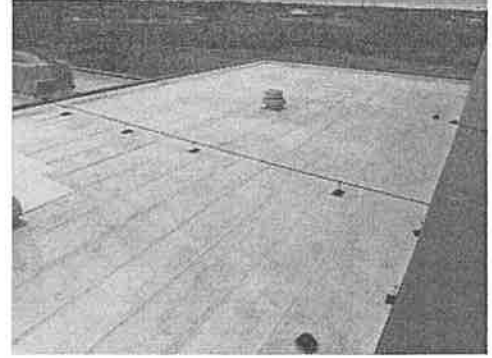
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Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Hilda Walker



IR_08587.IS2
2/15/2023

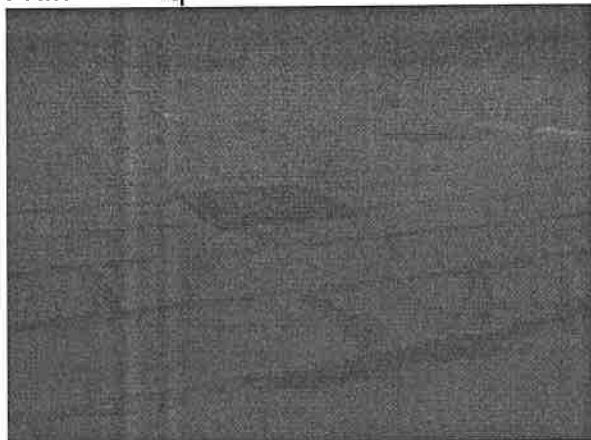


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	30.3°F to 49.5°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.63m

Frankfort Square



IR_08589.IS2
2/15/2023



Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	26.4°F to 46.3°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



Visible Light Image

IR_08590.IS2
2/15/2023

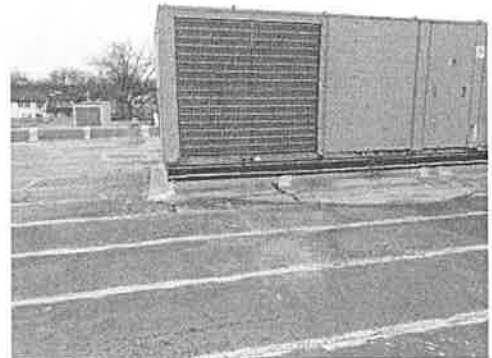
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Background temperature	40.0°F
Emissivity	0.98
Image Range	26.9°F to 43.3°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



IR_08591.IS2
2/15/2023

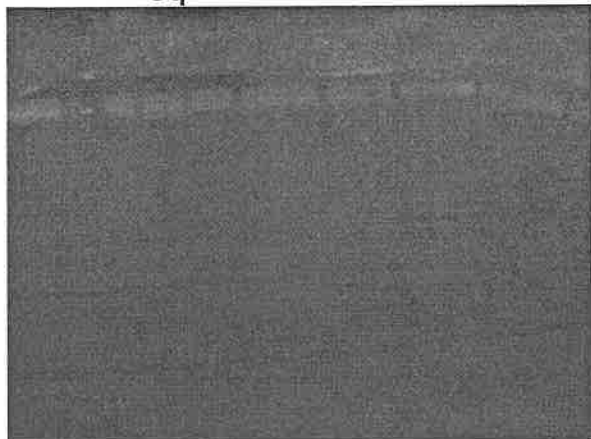


Visible Light Image

Image Info

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Emissivity	0.98
Image Range	27.8°F to 55.9°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



IR_08592.IS2
2/15/2023



Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	29.7°F to 44.6°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



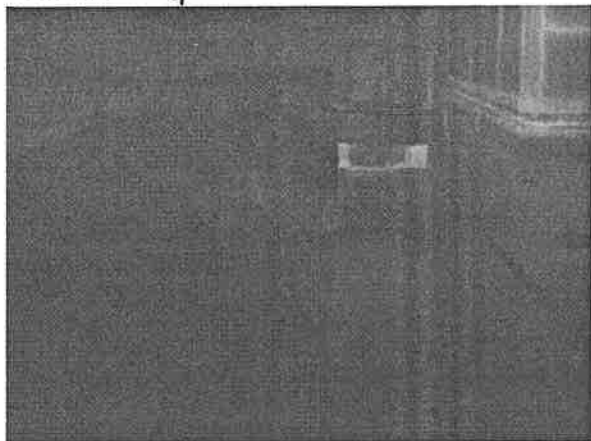
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IR_08593.IS2
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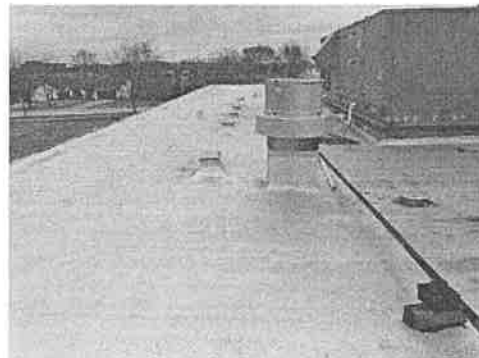
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Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



IR_08594.IS2
2/15/2023

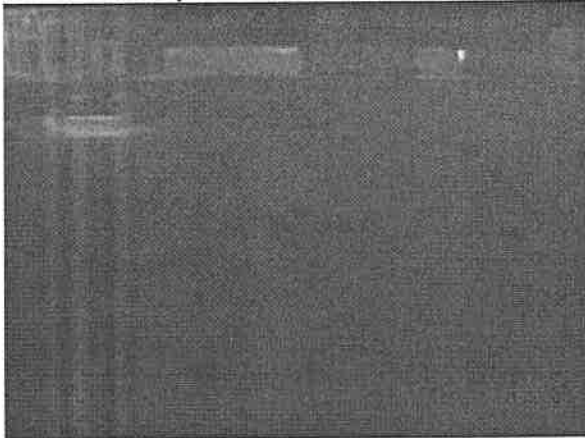


Visible Light Image

Image Info

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Camera Model	Ti400
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Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



IR_08596.IS2
2/15/2023

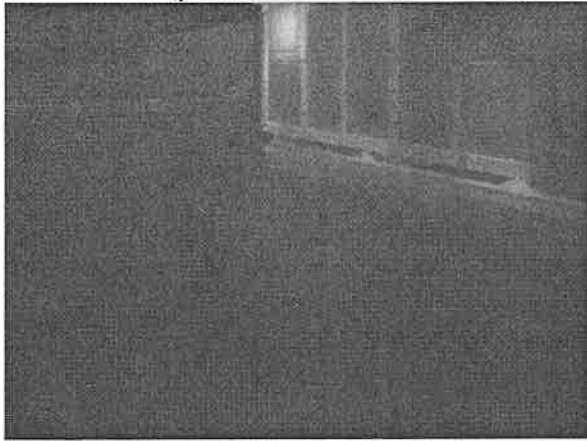


Visible Light Image

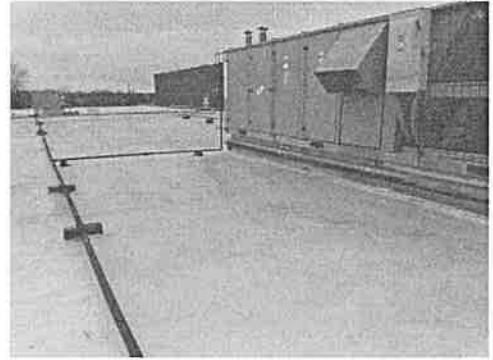
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Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



IR_08597.IS2
2/15/2023

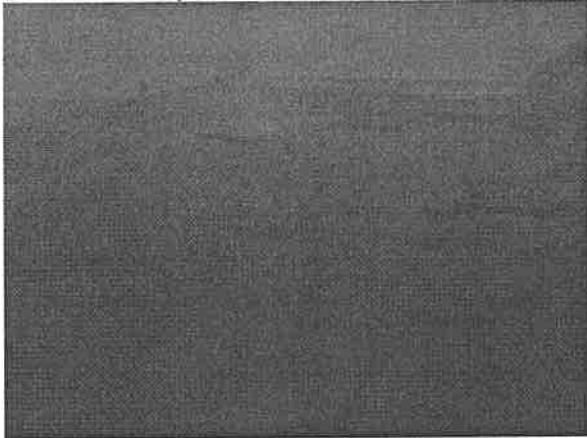


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	28.3°F to 70.7°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



IR_08598.IS2
2/15/2023

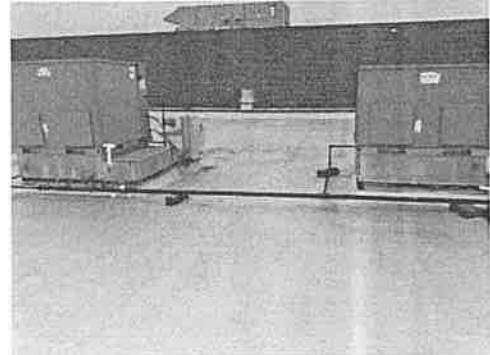
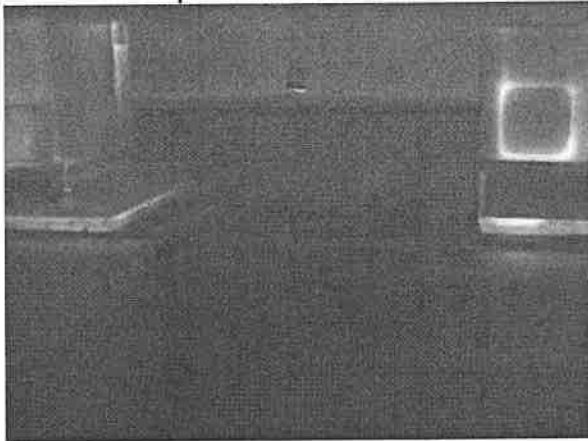


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	32.0°F to 49.8°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



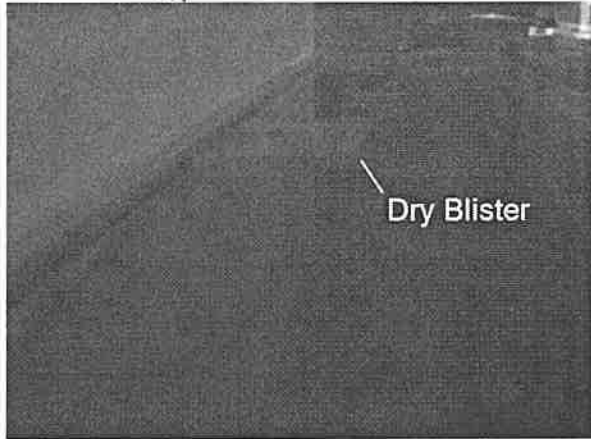
Visible Light Image

IR_08599.IS2
2/15/2023

Image Info

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Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Frankfort Square



IR_08600.IS2
2/15/2023

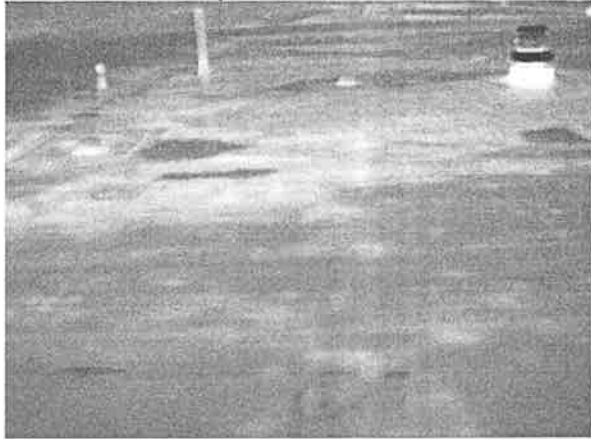


Visible Light Image

Image Info

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Image Range	31.6°F to 59.3°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-3.65m

Indian Trail - Spot #1



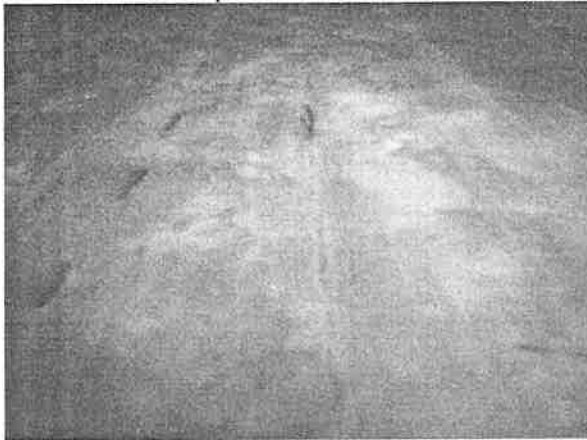
Visible Light Image

IR_08602.IS2
2/15/2023

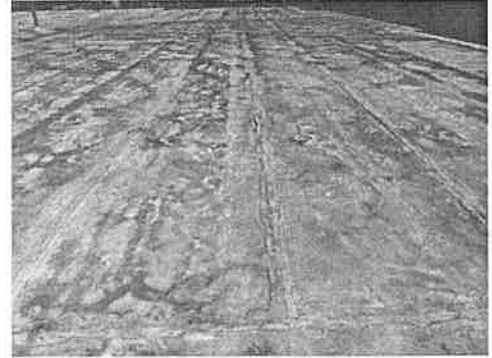
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Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.78m

Indian Trail - Spot #1



IR_08603.IS2
2/15/2023

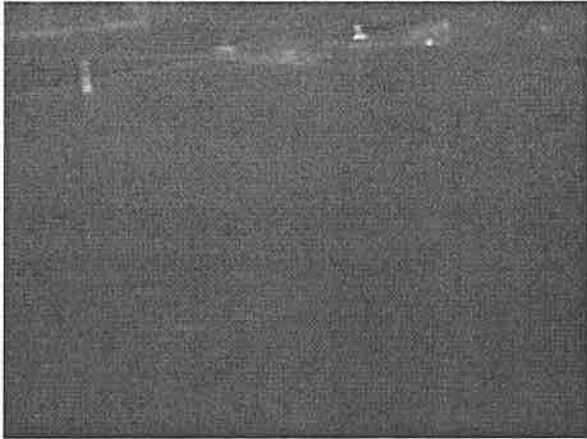


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	32.2°F to 41.1°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.78m

Indian Trail



Visible Light Image

IR_08604.IS2
2/15/2023

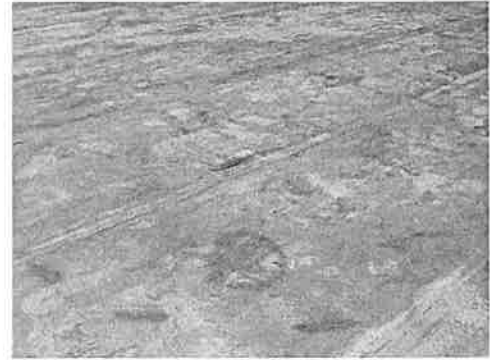
Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	31.0°F to 57.7°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.78m

Indian Trail - Spot #2



IR_08605.IS2
2/15/2023

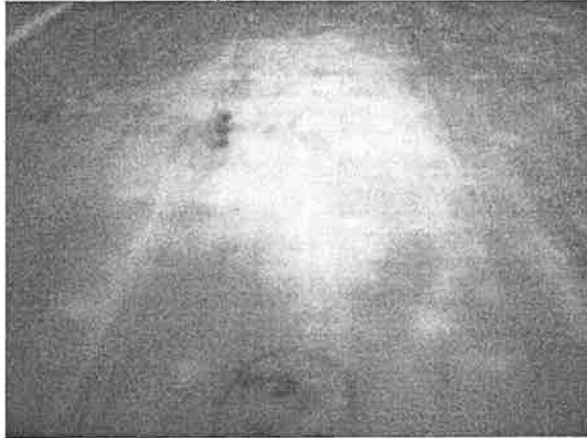


Visible Light Image

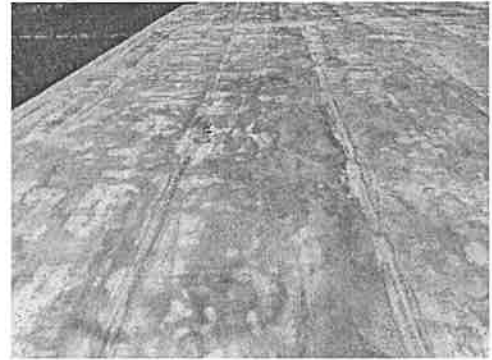
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Camera Model	Ti400
IR Sensor Size	320 x 240
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Camera Manufacturer	Fluke Thermography
Distance to Target	-4.78m

Indian Trail - Spot #3



IR_08606.IS2
2/15/2023

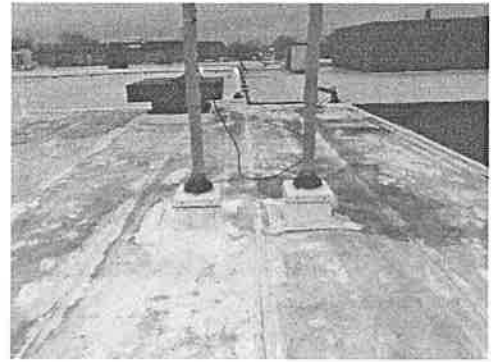
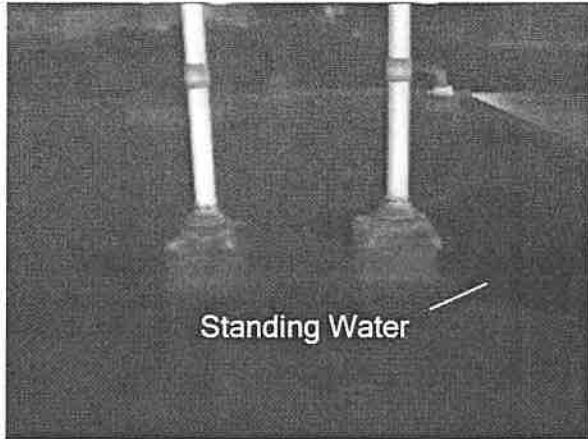


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	32.6°F to 41.3°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.78m

Indian Trail



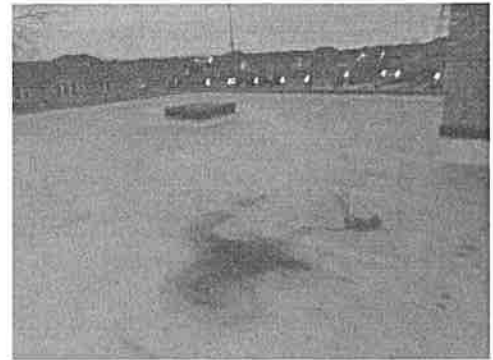
Visible Light Image

IR_08607.IS2
2/15/2023

Image Info

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Emissivity	0.98
Image Range	31.0°F to 69.7°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.78m

Arbury Hills



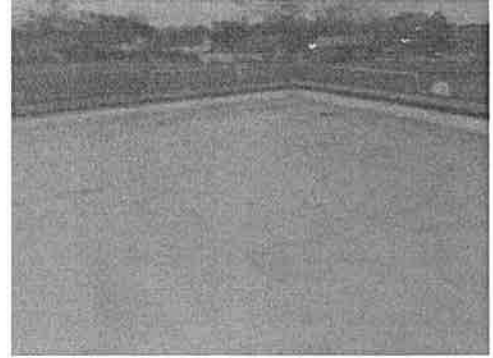
Visible Light Image

IR_08609.IS2
2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	28.8°F to 47.8°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



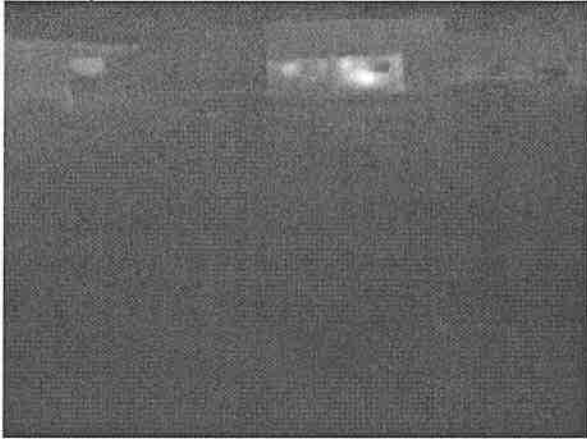
Visible Light Image

IR_08610.IS2
2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	29.6°F to 38.7°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



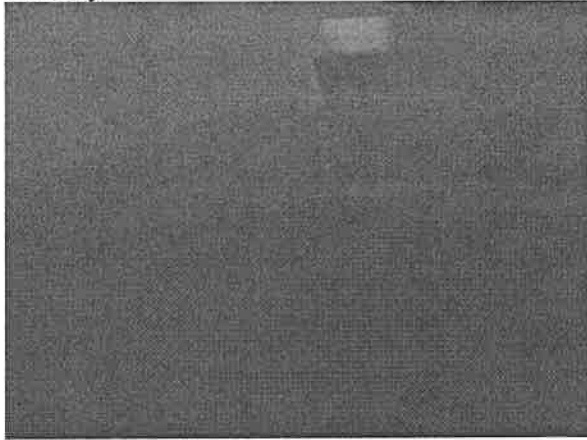
Visible Light Image

IR_08611.IS2
2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	26.1°F to 143.9°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



Visible Light Image

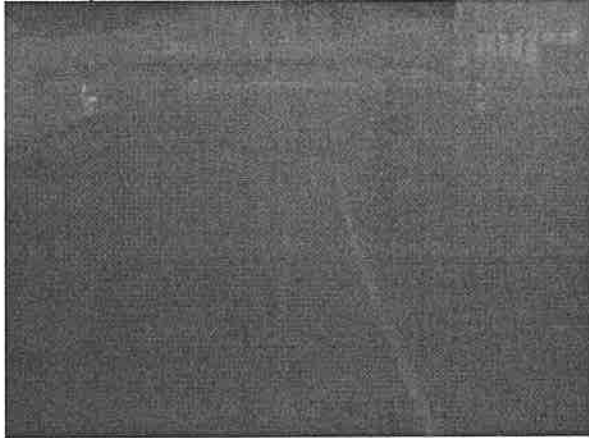
IR_08612.IS2

2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	30.4°F to 53.7°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



Visible Light Image

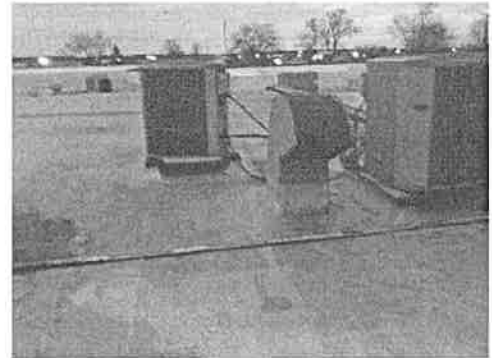
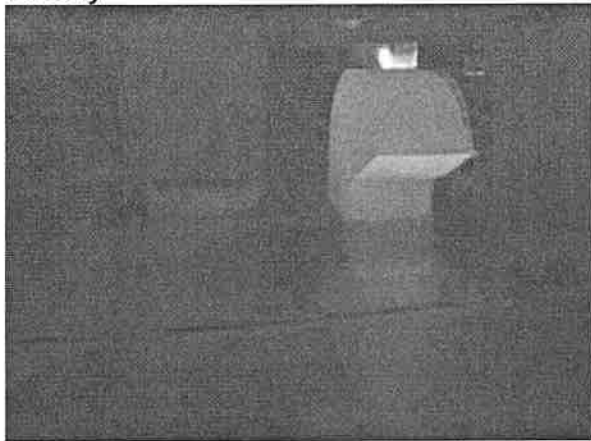
IR_08613.IS2

2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	28.9°F to 45.8°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



Visible Light Image

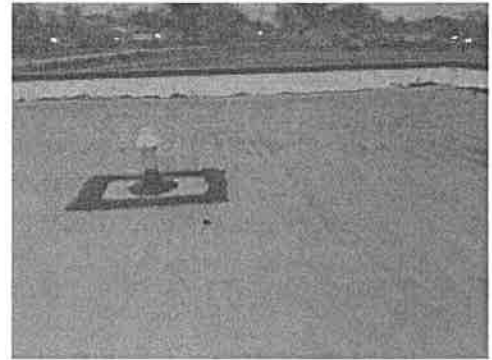
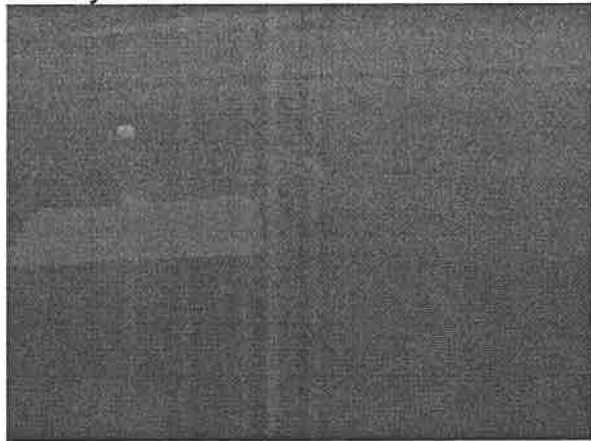
IR_08616.IS2

2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	30.4°F to ~178.7°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



Visible Light Image

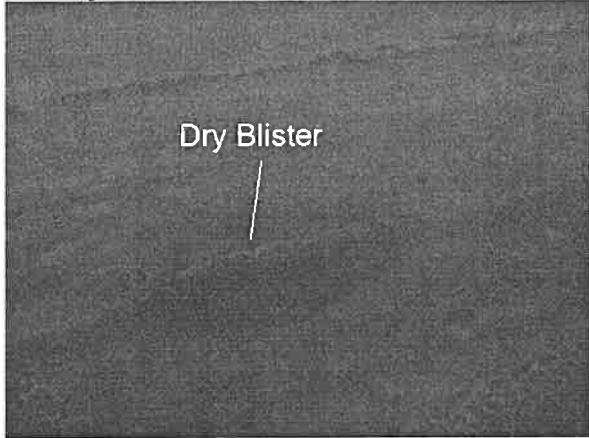
IR_08617.IS2

2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	30.9°F to 45.2°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



Visible Light Image

IR_08618.IS2

2/15/2023

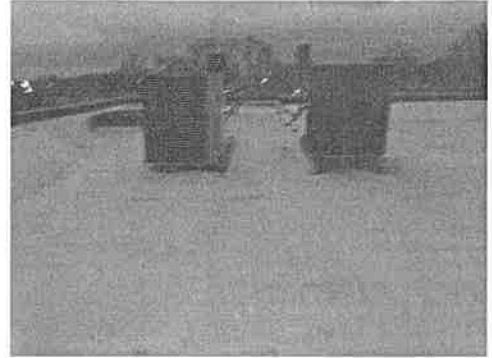
Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	29.7°F to 38.8°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



IR_08619.IS2
2/15/2023



Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	27.7°F to 43.3°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



IR_08620.IS2
2/15/2023

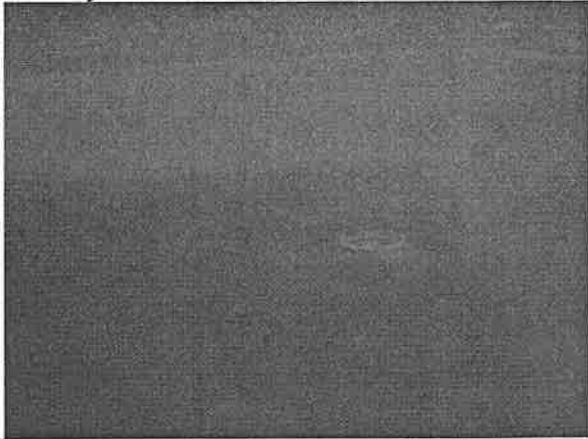


Visible Light Image

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	28.9°F to 40.8°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



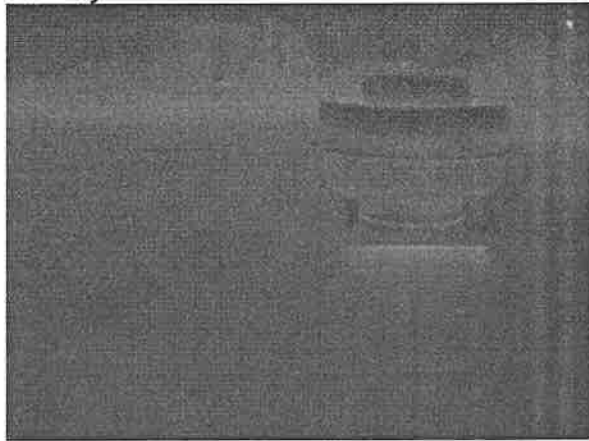
Visible Light Image

IR_08621.IS2
2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	30.5°F to 41.0°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Arbury Hills



Visible Light Image

IR_08622.IS2

2/15/2023

Image Info

Background temperature	40.0°F
Emissivity	0.98
Image Range	25.9°F to 45.2°F
Camera Model	Ti400
IR Sensor Size	320 x 240
Camera serial number	Ti400-17120844
Camera Manufacturer	Fluke Thermography
Distance to Target	-4.16m

Core Report – Indian Trail

Core #1 –

Metal Deck, Vapor Barrier, 3" ISO (100% Wet), Vapor Barrier, TPO

