

9/28/2018 6:10:01 PM



Campus_Photo.jpg Geolocation

Location	N 28° 17' 36.01", W 81° 21' 36.34"
http://maps.google.com?z=17&t=k&g=28.2933 -81.3601	

Thermal Imaging Date: Friday September, 28th 2018 Time of Thermal Imaging: Approx. 7:20 P.M EST. Sky Conditions: Fair - Daytime: Fair Daytime Temperature High: 92 Degrees Fahrenheit Temperature at time of Infrared Imaging: 86 Degrees Fahrenheit Wind Speed: 9 mph ESE Humidity: 67%

Imaging Performed by: Todd A. Hillhouse (Level III Thermographer) Roofing Surfaces: Various types- Bitumen / Single Ply Infrared Camera Type: Zenmuse XT2 Powered by FLIR 30hz 640x512 13mm Imaging Altitude: 100 ft AGL - 300 ft AGL

Visible and Infrared Images were taken on 9/28/2018 of Buildings 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 & 26. Analysis of IR images will be further detailed on the following pages specific to each building.

MOISTURE VERIFICATION: Infrared Thermography is a powerful tool for Nondestructive Testing and Analysis of flat roofing systems. However, to insure complete accuracy of the survey results, it is necessary to physically verify the presence of moisture within the roofing system. All indicated thermal anomalies will be marked with red arrows or a red zebra pattern on this report. These areas should be physically examined. There was a high concentration of granules around the drains and this is marked with an orange zebra pattern on this report. The granules will need to be removed for proper imaging.

In many instances roof leaks are found around drains and roof penetrations. In the IR images changes in temperature can be seen throughout many areas where there are no drains or visible penetrations. These areas with temperature changes will need to be physically inspected for loose material laps that may have allowed moisture intrusion. Areas with significant temperature deltas have been marked.

PHYSICAL TESTING: A core sample should be taken at the locations of concern marked with red arrows to verify moisture presence and water penetration. Physical testing and analysis can also be accomplished through the use of a moisture meter and electronically charged pins.



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 N 28° 17' 43.55", W 81° 21'

 38.08"

 http://maps.google.com?z=17&t=k&q=28.2954,-81.3606

Pictured here is Building 04. This roof is modified bitumen. Noticeable stains, granular buildup and drainage flow patterns can be seen. Areas of concern that should be investigated will be marked on the following pages that include IR images of this roof.



°F

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Measurements

mododromon	0	
Sp1		71.8 °F
Sp2		77.6 °F
Sp3		63.4 °F
Dt1	Sp1 - Sp2	-5.8 °F

Parameters

Emissivity	0.85
Refl. temp.	75 °F

Geolocation

Compass	0° N	
Location	N 28° 17' 43.39", W 81° 21' 38.12"	
http://maps.google.com?z=17&t=k&q=28.2954,-81.3606		

Note

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Text annotations

Building 04

The whiter areas indicate a higher temperature than the darker areas. The darker, cooler, areas including Sp3 are caused by granular build up. On the following page these areas are marked by an orange zebra pattern.

There are thermal anomalies in the granular build up area on both drains which is warmer towards the drain. Recommend doing a core sample at the location of red arrow on this page and further physically investigate areas with the red zebra pattern on the following page.





BLDG_04_Visible_Marked.jpg



9/28/2018 6:02:40 PM



Building_18_East_Visible.jpg

Geolocation

 Location
 N 28° 17' 41.63", W 81° 21' 36.59"

 http://maps.google.com?z=17&t=k&q=28.2949,-81.3602

Pictured here is Building 18's Eastern lower roof. This roof is modified bitumen. Noticeable stains and drainage flow patterns can be seen. Areas of concern that should be investigated will be marked on the following pages that include IR images of this roof.





Text annotations BLDG 18 Lower East

page.

Measurements

Sp1		73.1 °F
Sp2		80.7 °F
Dt1	Sp1 - Sp2	-7.7 °F

Parameters		
Emissivity	0.85	
Refl. temp.	75 °F	

Geolocation

Compass	0° N	
Location	N 28° 17' 41.45", W 81° 21' 36.63"	
http://maps.google.com?z=17&t=k&q=28.2948,-81.3602		

Note

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The whiter areas indicate a higher temperature than the darker areas.

Recommend doing a core sample at the location of red arrow on this page and further physically investigate area with the red zebra pattern on the following

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Building_18_West_Visible.jpg

Geolocation

Location	N 28° 17' 42.15", W 81° 21' 37.43"
http://maps.google.com?z=17&t=k&q=28.2950,-81.3604	

Pictured here is Building 18's Western lower roof. This roof is modified bitumen. Noticeable stains and drainage flow patterns can be seen. Areas of concern that should be investigated will be marked on the following pages that include IR images of this roof.



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BLDG_18_Lower_West_IR.JPG

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Measurements		Text annotations			
Sp1		77.3 °F	BLDG 18 Lower West		
Sp2		83.3 °F	The whiter energy indicate a higher term eventure then the deriver evens. The deriver		
Sp3		72.0 °F	cooler, areas including Sp3 a	cooler, areas including Sp3 are caused by granular build up. On the following page	
Dt1	Sp1 - Sp2	-6.0 °F	these areas are marked by an orange zebra pattern. Recommend doing a core		
Parameters		areas with the red zebra patte	areas with the red zebra pattern on the following page.		
Emissivity		0.85			
Refl. temp.		75 °F			

Geolocation

Compass	0° N
Location	N 28° 17' 42.01", W 81° 21' 37.40"
http://maps.google.com?z=17&t=k&q=28.2950,-81.3604	

Note

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UAS THERMALS[®] AERIAL & INDUSTRIAL IMAGING SOLUTIONS Qualitative Infrared Report Florida High School Flat Roof Surfaces: Modified Bitumen & Single Ply



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Builiding_18_North_Visible.jpg

 N 28° 17' 42.97", W 81° 21' 36.17"

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Pictured here is Building 18's Northern lower roof. This roof is modified bitumen. Noticeable stains and drainage flow patterns can be seen. Organic debris is also visible. Areas of concern that should be investigated will be marked on the following pages that include IR images of this roof





BLDG_18_Nothern_Lower_Roof_IR.J	PG
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Measurements			
Sp1		70.7 °F	
Sp2		74.7 °F	
Sp3		64.1 °F	
Dt1	Sp1 - Sp2	-4.0 °F	

Text annotations BLDG 18 Lower North

The whiter areas indicate a higher temperature than the darker areas. The darker, cooler, areas including Sp3 are caused by granular build up. On the following page these areas are marked by an orange zebra pattern.

Parameters

Emissivity	0.85
Refl. temp.	75 °F

Geolocation

Compass	0° N N 28° 17' 42.86", W 81° 21' 36.11"	
Location		
http://maps.google.com?z=17	&t=k&q=28.2952,-81.3600	

Note

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