



THERMAL DRONE ROOF REPORT

Saginaw Chippewa Tribe - Soaring Eagle Casino

LIDAR Drone Services

Capture Date: 02/12/24
Created Date: 02/14/24

Drone Operator: Robert Hart
Thermographer: Robert Hart

LIDAR Drone Services Commercial Roof Report

Overview

L.I.D.A.R. Drone Services conducted a complete thermal drone roof inspection above the Soaring Eagle Casino's employee dining area. The client expressed concern that there may be moisture intrusion and requested an overall thermal drone scan of the roof to locate any current moisture issues.

A heat anomaly found during a thermal drone scan indicates possible issues such as moisture infiltration, heat loss, insulation problems, or electrical malfunctions. It serves as a warning sign for prompting further investigation or maintenance to prevent problems and ensure proper functionality.

During the day, solar radiation heats both the roof and moisture. Moisture retains heat better, appearing warmer than the dry roof material during a thermal drone scan. This temperature difference becomes more evident after a day of sunshine, accentuating the warmth of the moisture on the thermal image.

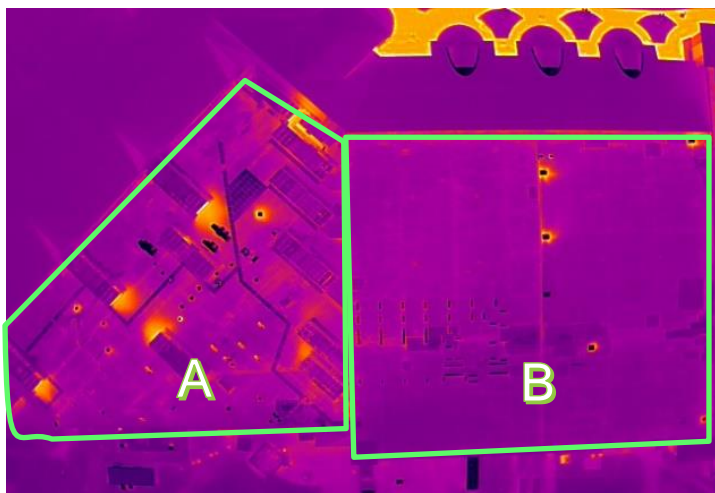
The area of roof scanned is broken into two Sections, A & B. Those two sections are then broken down into numbered sub-sections. All images are labeled.

*Note: This inspection did not require any temperature readings. The camera settings were left at the factory values for RAT, humidity, and emissivity. Any temperature readings are apparent temperatures.

EQUIPMENT

DJI Mavic 3 Enterprise Thermal Drone

DJI Mavic 3 Enterprise Drone



Roof Overview-Sections

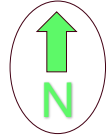
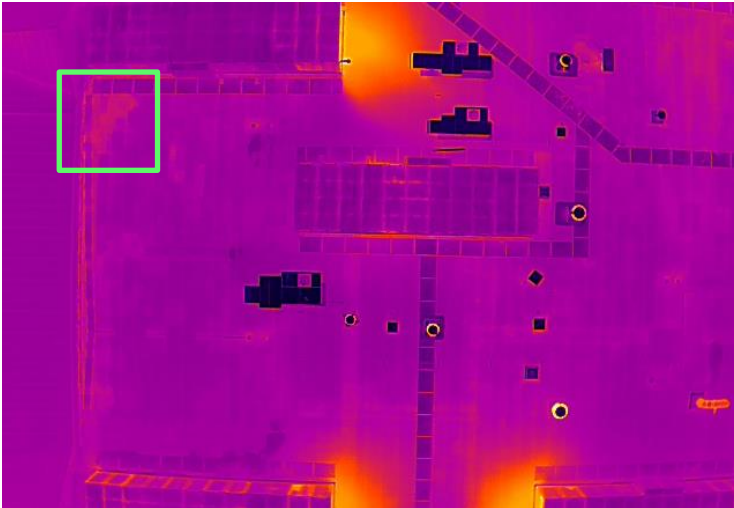


Roof Overview-Sub-Sections

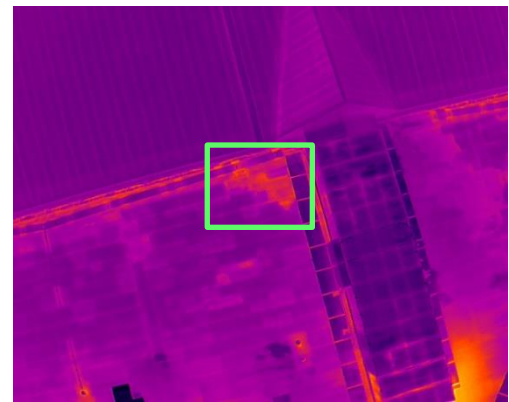
Text Annotations:

All pictures are labeled with corresponding section and sub-section.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	400'
Wind Speed	5mph



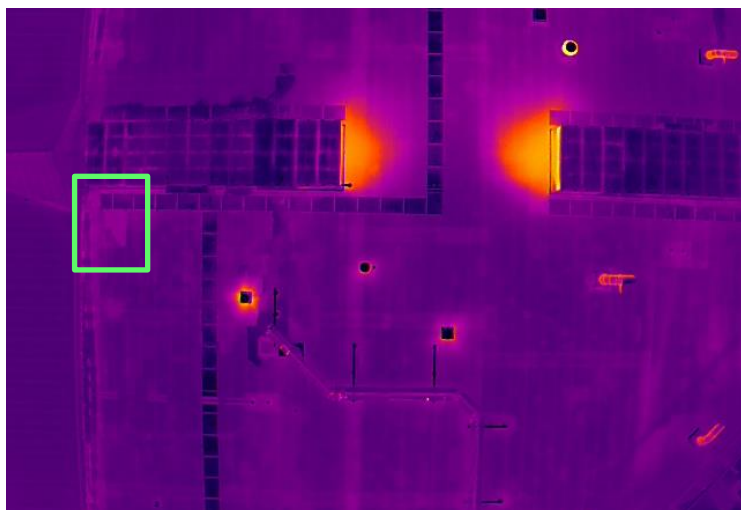
Anomaly - Section A2



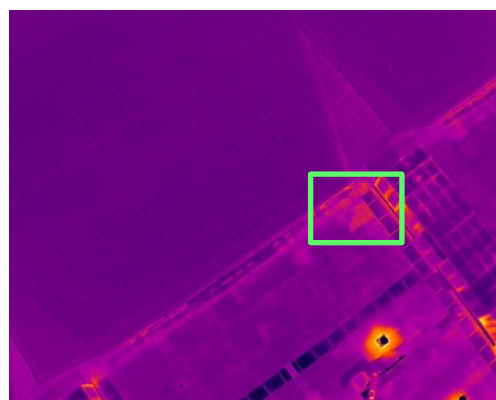
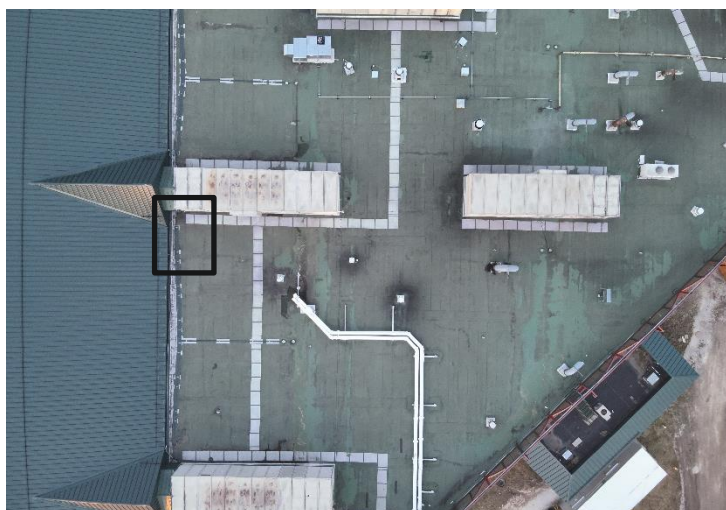
Text Annotations:

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph

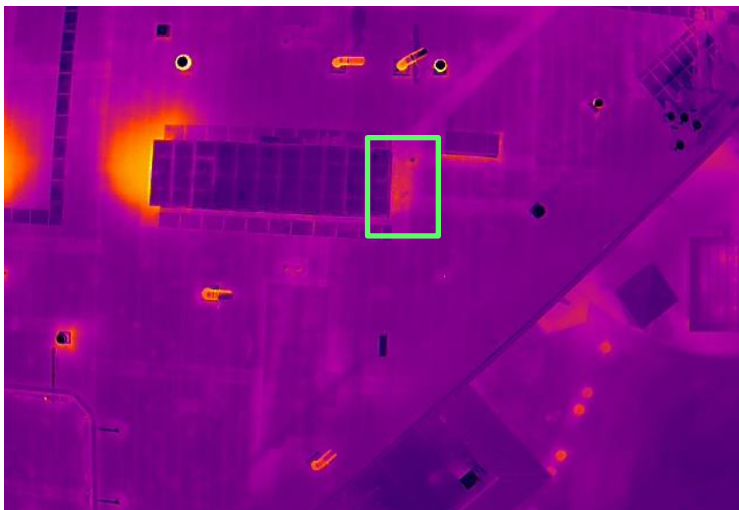


Anomaly - Section A3

**Text Annotations:**

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph



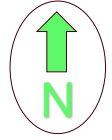
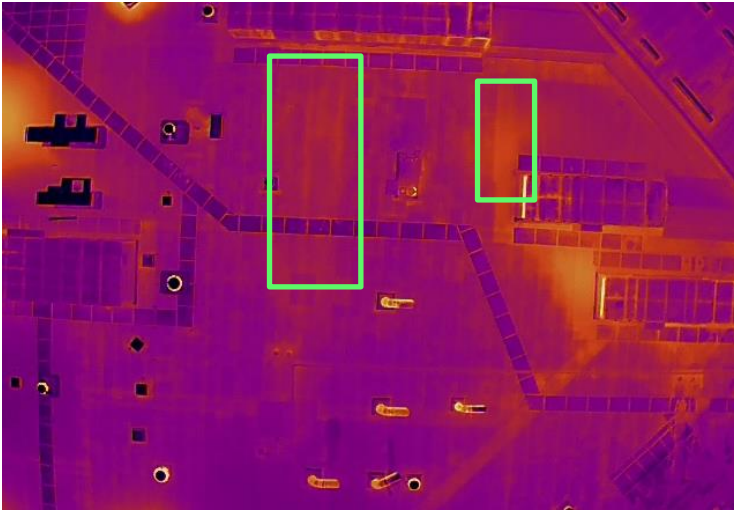
Anomaly - Section A5



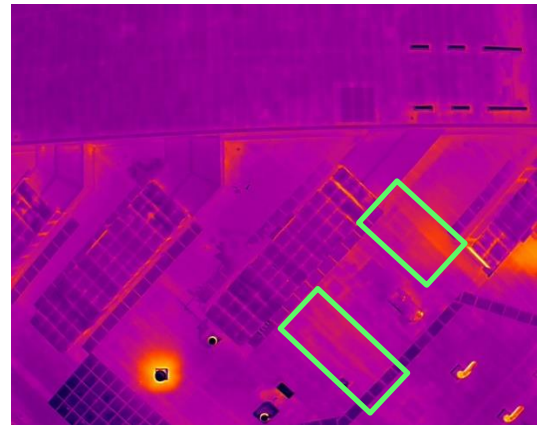
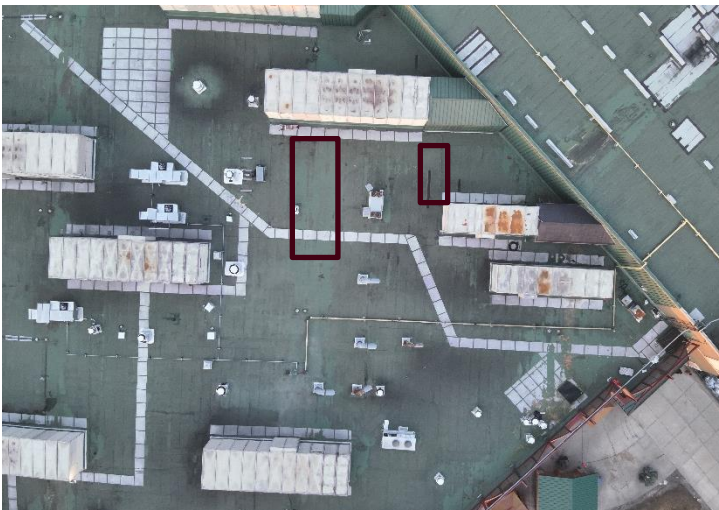
Text Annotations:

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph



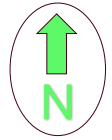
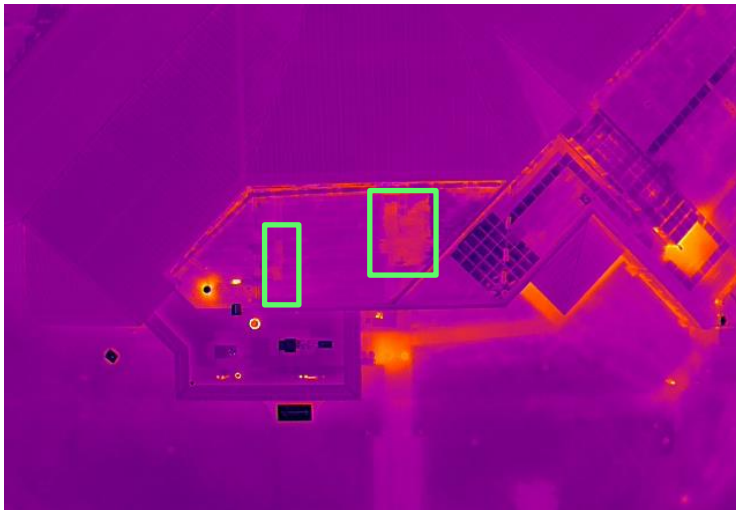
Anomaly - Section A6



Text Annotations:

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph



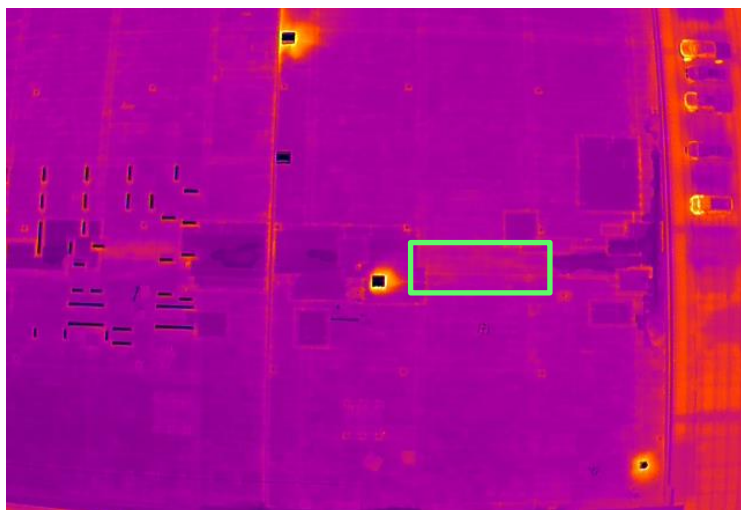
Anomaly - Section A9



Text Annotations:

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph



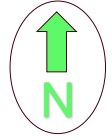
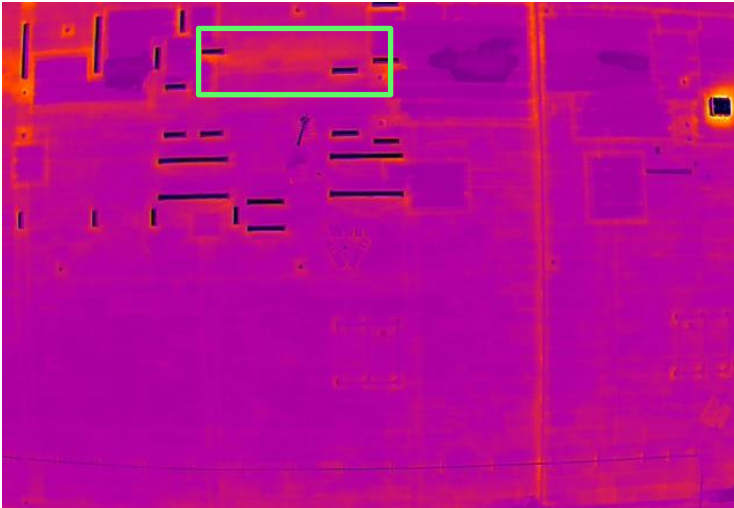
Anomaly - Section B1



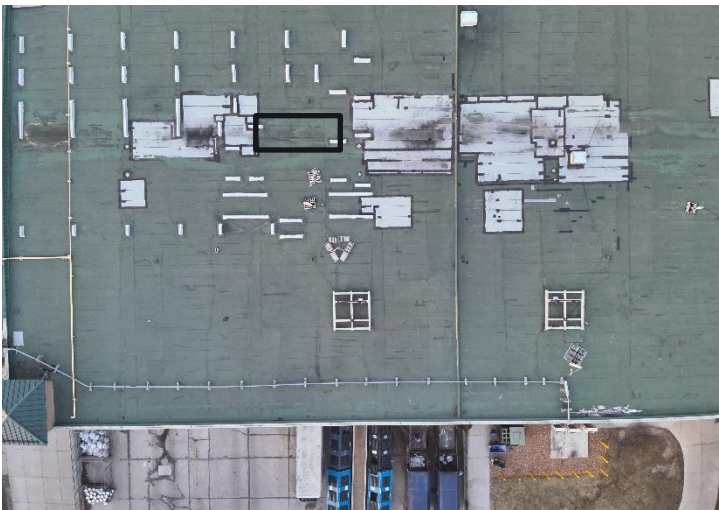
Text Annotations:

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph



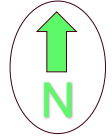
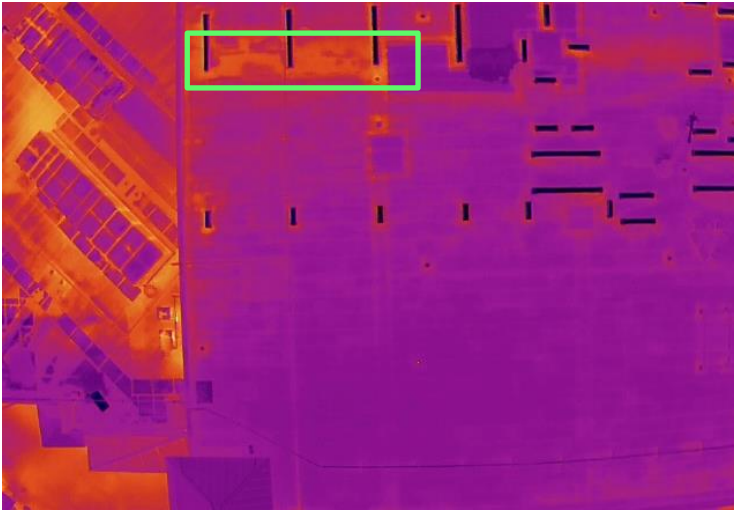
Anomaly - Section B2



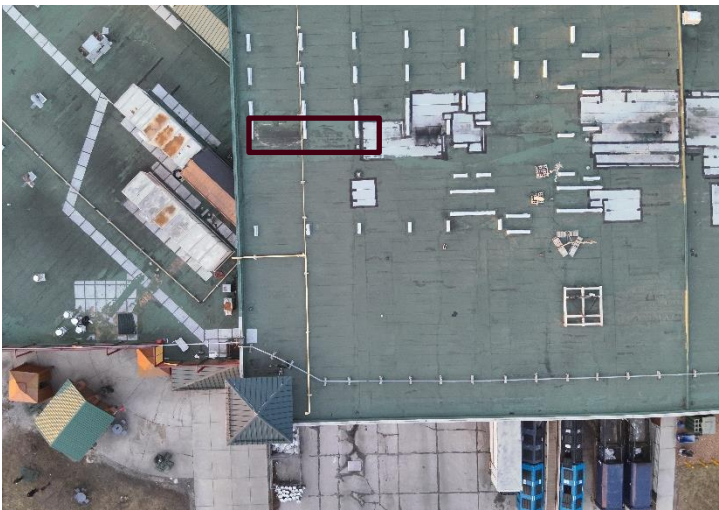
Text Annotations:

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph

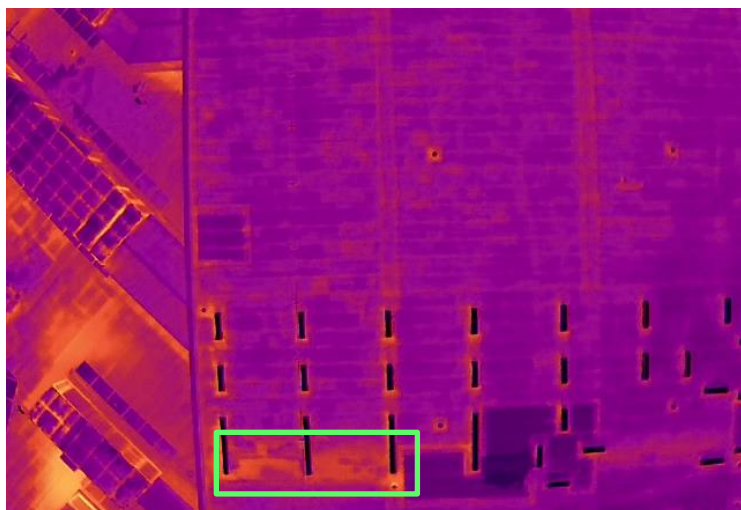


Anomaly - Section B3

**Text Annotations:**

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph



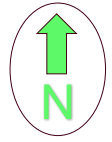
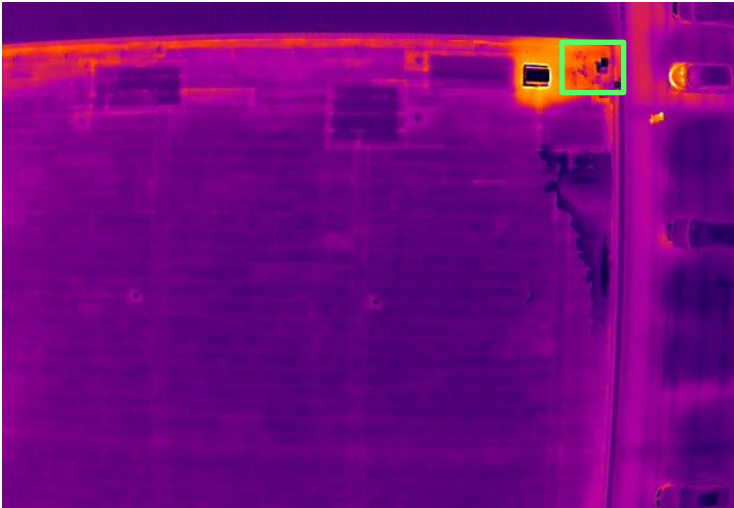
Anomaly - Section B4



Text Annotations:

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph

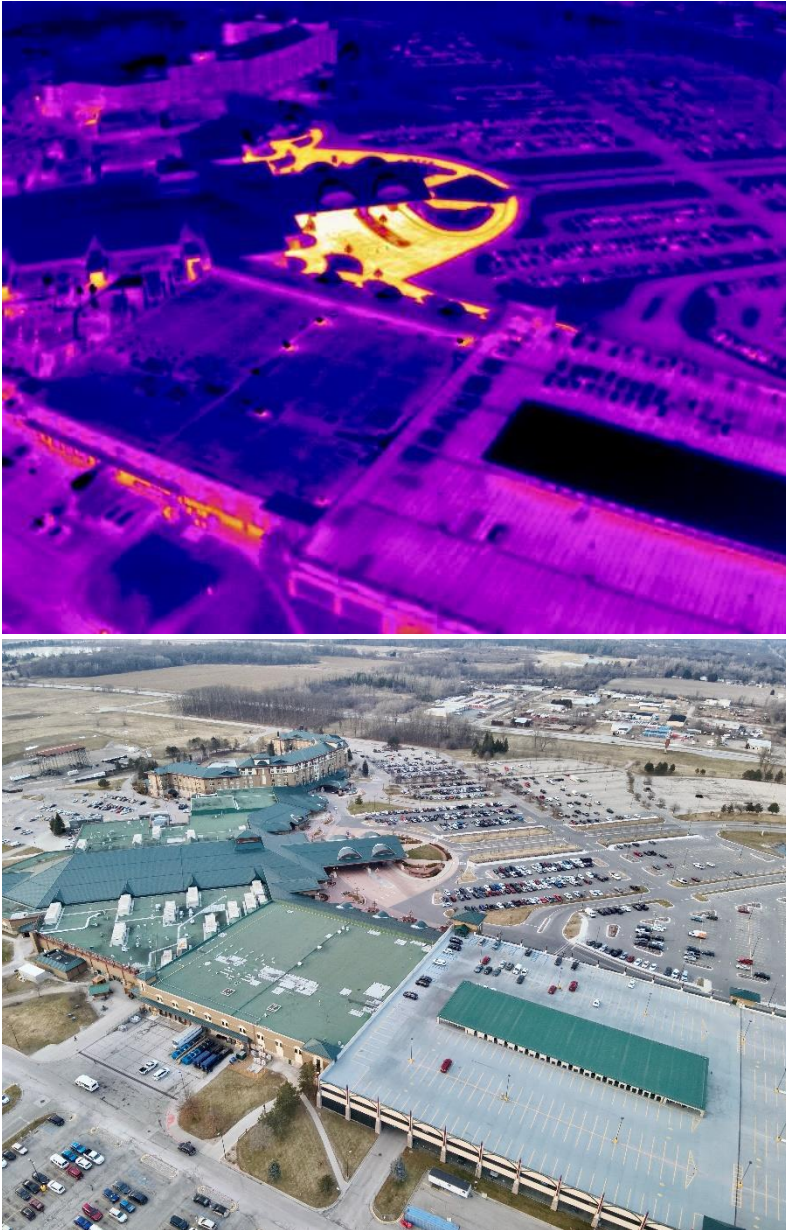


Anomaly - Section B7

**Text Annotations:**

An anomaly was detected indicating possible moisture intrusion. Further investigation is recommended.

Camera Info	
Camera Model	M3T
Lens	9.1mm
Width	640
Height	512
Flight Altitude	100'
Wind Speed	5mph



Conclusion:

In conclusion, the thermal drone roof scan has successfully identified several anomalies that may indicate potential moisture intrusion issues. These findings underscore the importance of further investigation and action to ensure the integrity and longevity of the roof structure.

As a thermography expert, I recommend that our client engage the services of a qualified commercial roofer to conduct a comprehensive assessment and implement necessary repairs or maintenance measures. Timely intervention can mitigate the risk of further damage and preserve the integrity of the building.

Thermography Certifications:

