



DRONE INSPECTION REPORT

Sample Project

Commercial roof · Aerial photo map + thermal inspection

Report date	Sample report (date withheld)
Report no.	Demonstration sample (no number)
Daytime photos captured	Day 1, 5:12–5:22 PM (date withheld)
Thermal captured	Day 4, 9:37–9:54 PM (date withheld)
Inspection	Daytime photos + radiometric thermal
Area shown	≈ 10,394 sq ft (cropped)
Location	Withheld for privacy
Thermographer	Justin Eagleston, ITC Level I sUAS Certified Infrared Thermographer

Demonstration sample from a real inspection, shared with the building owner's permission. Location withheld and imagery altered for privacy; wording lightly edited for readability.

One area needs follow-up: the warm line where the sloped metal roof drains into the collector (outline A), recommended for moisture-meter verification. The other marked areas are consistent with surface conditions rather than a discrete moisture signature.

Marked areas (details on the Annotations pages; letters match the maps)

Area	What the thermographer noted	About
A	Primary (metal-roof runoff onto TPO)	237 sq ft
B	Paneled TPO is mottled and stained in RGB (daytime flight).	123 sq ft
C	Thermal variation at the ballasted corner adjacent to the large RTU.	276 sq ft





Thermal Interpretation

This is a demonstration sample from a real CSRA Precision Imaging roof inspection, shared with the building owner's permission. The property location is withheld and the imagery has been cropped, mirrored and rotated to protect the owner's privacy; the findings are the ones delivered, with wording lightly edited for readability.

One area needs follow-up: the warm line where the sloped metal roof drains into the collector (outline A), recommended for moisture-meter verification. The other marked areas are consistent with surface conditions rather than a discrete moisture signature.

All findings are based on daytime aerial photo map and radiometric thermal imagery collected for inspection, planning, and documentation. Thermal patterns are not a confirmation of active leakage. Moisture-meter or invasive testing by others is required to confirm subsurface conditions. Measurements are approximate. These images and measurements are for inspection and planning only and are not a boundary, topographic or engineering product; consult a licensed professional for those. CSRA Precision Imaging, LLC does not perform or bid roof or plumbing repairs.

Justin Eagleston, ITC Level I sUAS Certified Infrared Thermographer

Roof as reported

Membrane: not reported; Insulation: not reported; Cover board: not reported; Deck: not reported; Roof age: not reported; Second roof underneath: not reported. Items not reported are worth confirming with your roofer.



Capture Conditions

The daytime photos and the thermal images were taken on separate flights. Times come from each photo's capture metadata; weather comes from the nearest airport weather station (ASOS).

	Daytime flight	Thermal flight
Captured	Day 1, 5:12–5:22 PM (date withheld)	Day 4, 9:37–9:54 PM (date withheld)
Station observation	4:53 PM	9:53 PM
Temperature / dew point	74 °F / 64 °F	69 °F / 47 °F
Relative humidity	71%	45%
Wind	7 mph (6 kt) from 20°	calm
Sky	broken clouds at 2,200 ft, overcast at 3,000 ft	clear
Visibility	10 mi	10 mi
Present weather	none reported	none reported
Rain, prior 72 h	1.00 in	0.00 in
Last measurable rain	25 h before	none in the prior 72 h
Last trace of rain	10 h before	48 h before
Day's high / daytime sky	74 °F / scattered clouds to overcast	81 °F / clear

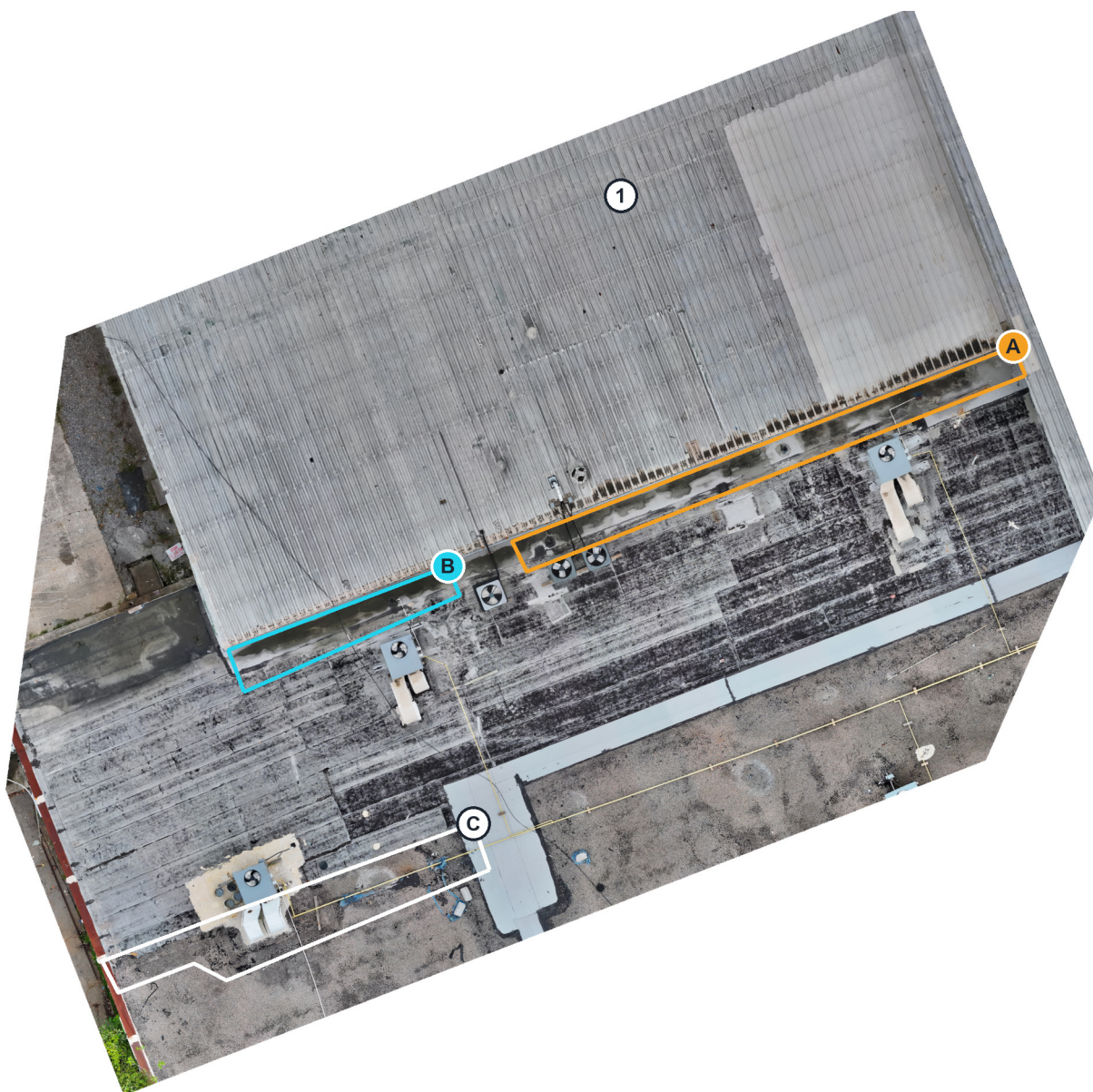
Between flights (76 h, end of the daytime flight to the start of the thermal flight): 0.00 in plus trace amounts of precipitation; no rain or storm codes.

Observations are from the nearest ASOS station (station and distance withheld for privacy); conditions at the site may differ from the station's.

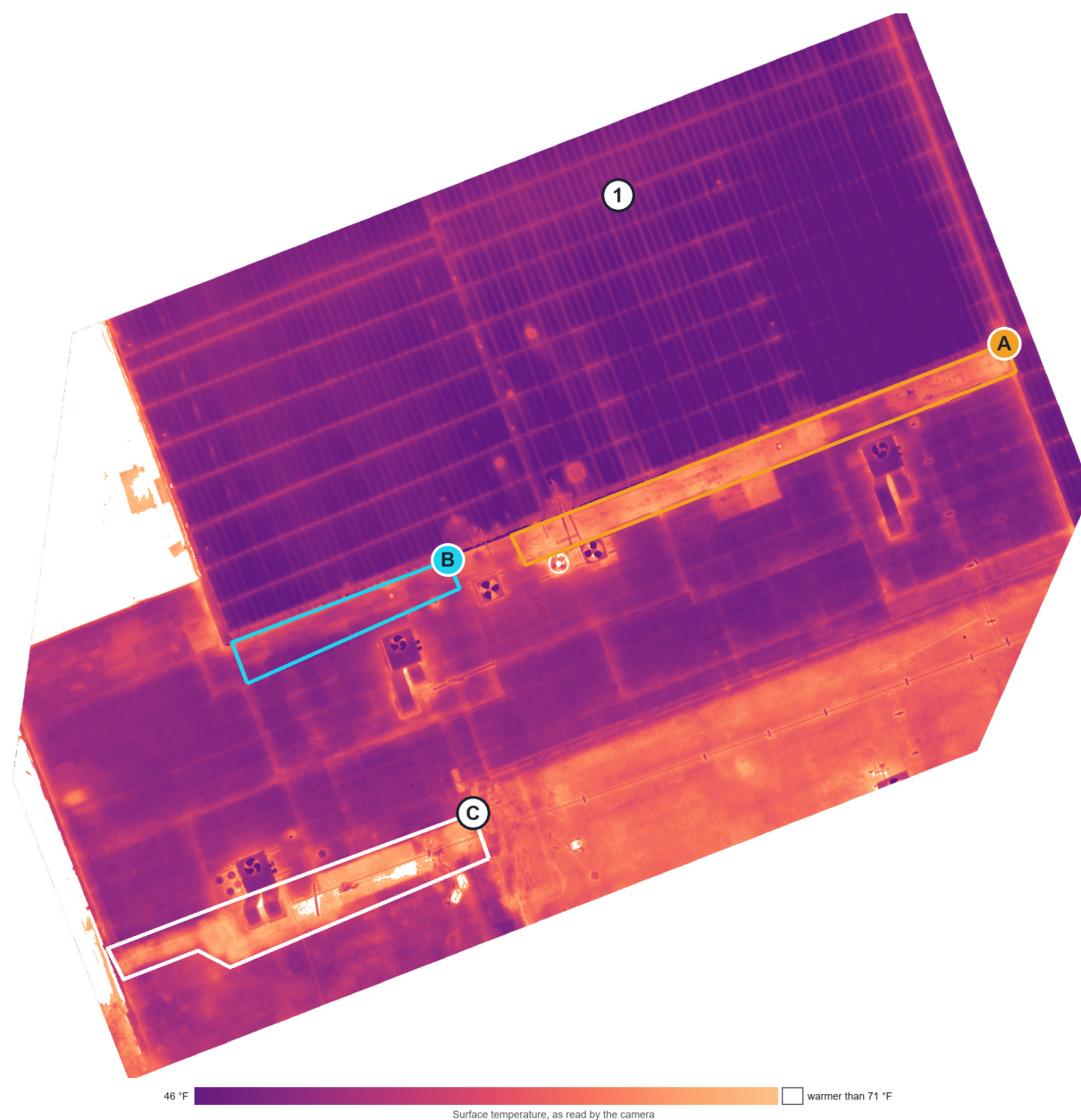
Source: Iowa Environmental Mesonet ASOS archive (station, distance and retrieval date withheld for privacy).



Site Overview



Daytime aerial photo map with annotations: numbered points and lettered areas, outlined in the thermographer's colors (they match the online map); see Annotations. Orientation altered for privacy; no north arrow.



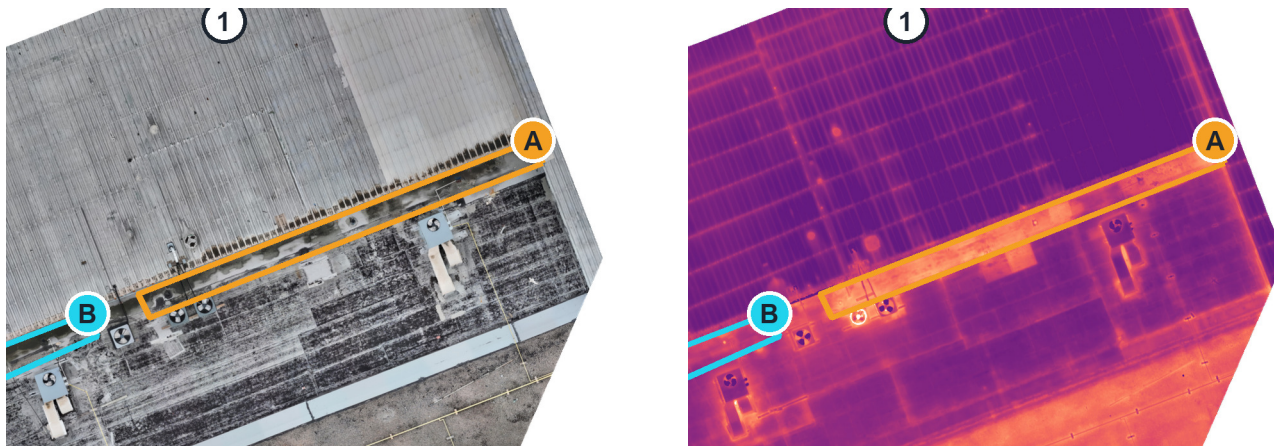
Thermal overlay with annotations: numbered points and lettered areas, outlined in the thermographer's colors (they match the online map); see Annotations. Orientation altered for privacy; no north arrow. Color scale: 45.7 °F (7.6 °C) dark purple to 70.7 °F (21.5 °C) pale orange; areas warmer than 70.7 °F (mostly pavement and ground, which hold more heat than the roof) are shown white.



Annotations

Each marking below appears on the overview maps and on your online project map. Close-ups show the same area in visible light (left) and thermal (right).

A. Outline



Primary (metal-roof runoff onto TPO)

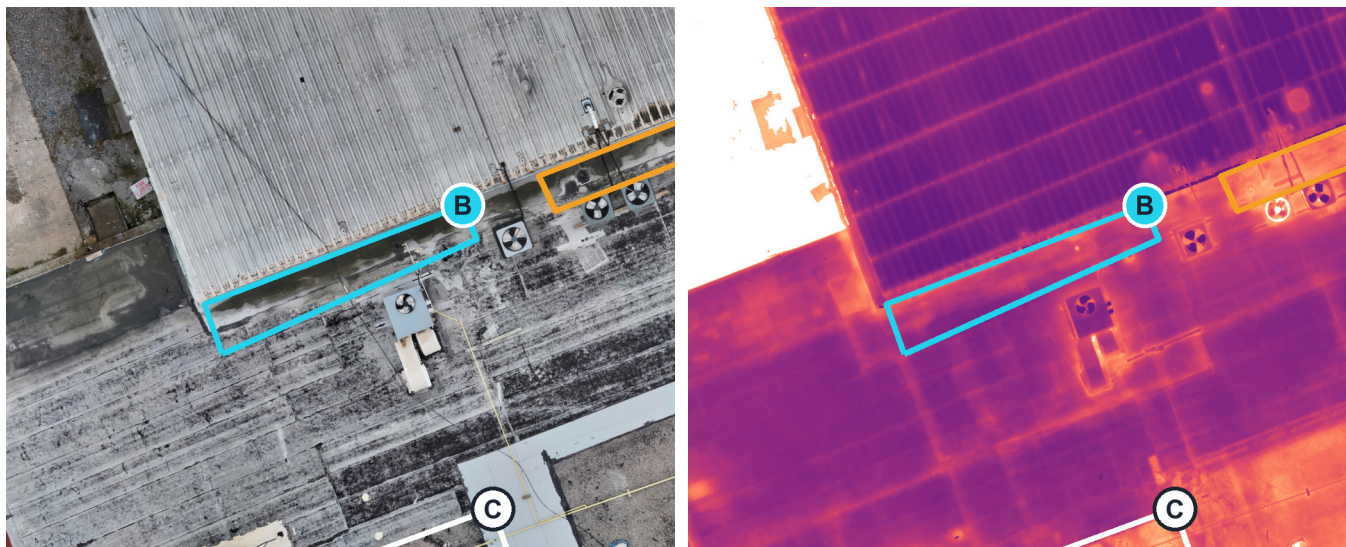
Thermal captured approximately 9:30–10 PM after daytime solar loading. Linear thermal anomaly on the TPO directly beneath the drip edge of the sloped standing-seam metal roof, adjacent to rooftop equipment. RGB (daytime flight) shows staining on the lower metal ribs and at the tie-in, consistent with runoff from the metal roof concentrating along this strip. The warm pattern is consistent with retained heat from repeated wetting along this strip and/or in the first panels of the receiving roof.

Control: the TPO west of this strip is significantly darker in RGB (daytime flight) and remains thermally cool, so stain density and membrane color do not explain the warm run.

Recommend moisture-meter verification along the warm segment and immediately off equipment curbs. Recommend a qualified roofer and/or plumber inspect this drainage path for proper function (open flow, debris, standing water, overflow onto the TPO). This is not a determination that the drainage has failed and is not a repair recommendation.

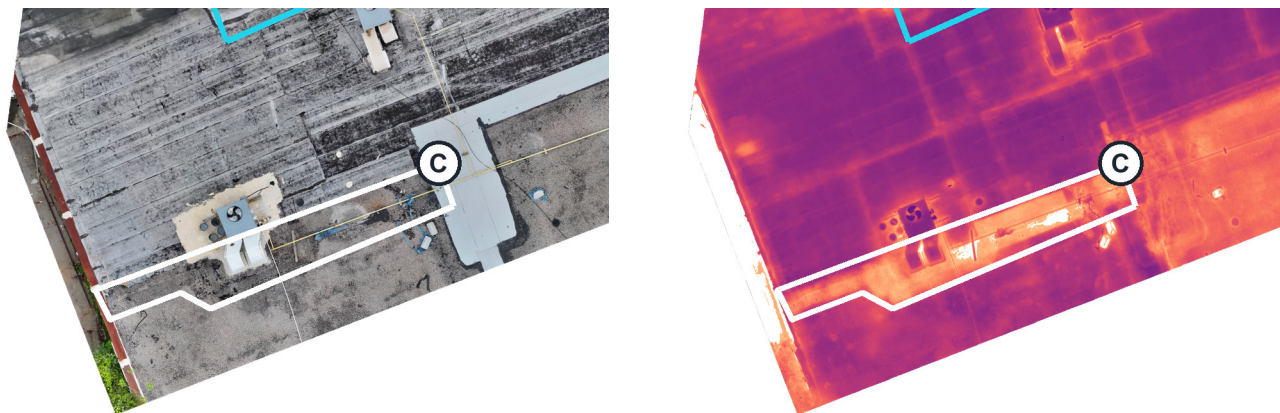


B. Outline



Paneled TPO is mottled and stained in RGB (daytime flight). Most thermal variation on this field tracks surface soiling and panel layout, not a discrete moisture bloom. Darker TPO in this area remained cool on the evening flight. Treat as general covering condition unless a meter identifies specific outlier panels.

C. Outline

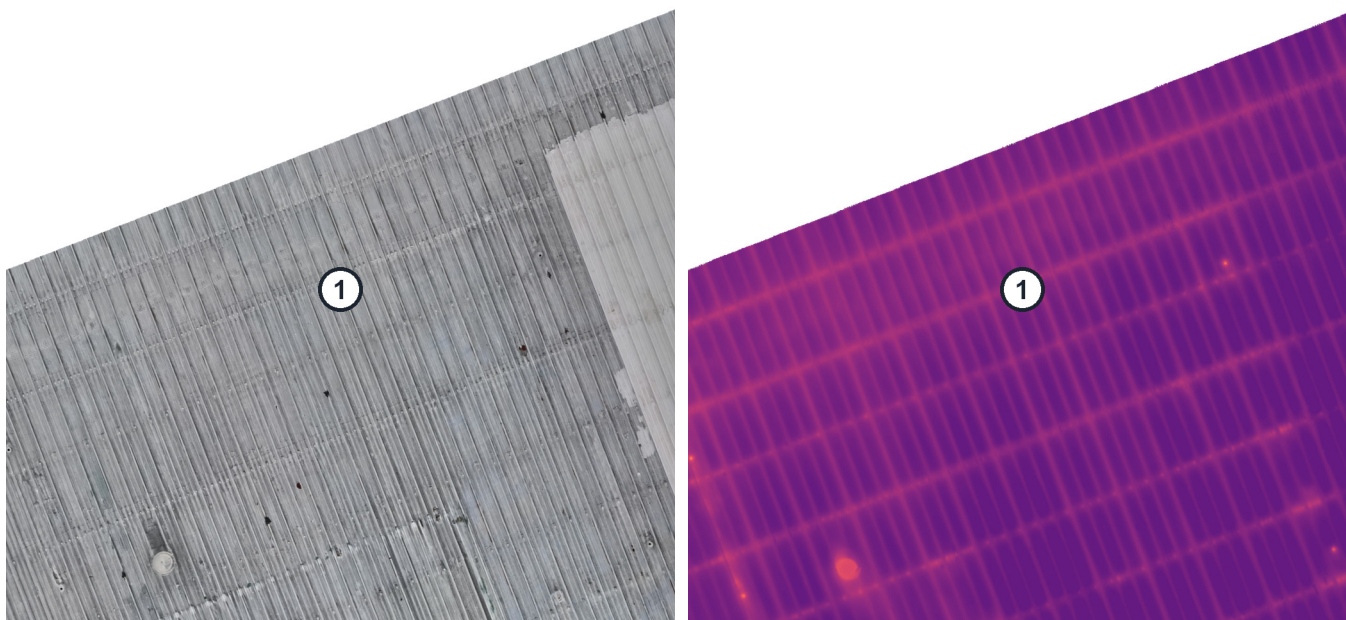


Thermal variation at the ballasted corner adjacent to the large RTU. RGB (daytime flight) shows mixed/darker aggregate and debris in the same footprint. Pattern is consistent with ballast color and texture.

Not a standalone moisture call from imagery. Meter only if interior evidence exists.



1. Marked point



Sloped standing-seam metal

Large sloped metal plane is thermally uniform aside from the discharge edge in outline A. Rib pattern is regular. No widespread anomaly identified on this field from the evening dataset.

Finding the Marked Areas on Site

Your secure online project map can show where you are standing. On site, open the map on a phone, tap the location button (the round target button under the zoom buttons) and allow location; a blue dot follows you as you walk. Tap any marked area on the map, or pick it from the list, to see roughly how far away it is and in which direction. Phone location on a roof can be off by 10–30 ft or more, especially next to walls, parapets or large rooftop equipment; the light blue circle around your location dot shows that range, and the distance shown is approximate. Use the guidance to reach the right part of the roof, then use the visible landmarks on the map (rooftop units, drains, seams, patches) to find the exact spot. Your position stays on your phone and is not stored or sent to us. Location guidance is an aid only: confirm suspect areas with a moisture meter or core sample before repair decisions, and follow safe roof-access practices. Stop walking to read the phone, and never use the guidance to approach a roof edge or opening; the error can be larger than the distance to the edge.

Limitations

Measurements and positions are approximate. These images and measurements are for inspection and planning only and are not a boundary, topographic or engineering product; consult a licensed professional for those. Thermal imaging records surface temperatures at the time of the flight; findings indicate areas that warrant further investigation and should be confirmed by on-site inspection before repair decisions are made. Scope: the moisture assessment applies to low-slope, insulated roof assemblies. Canopies and awnings, areas where insulation sits below the deck, and steep-slope (residential shingle) roofs are assessed qualitatively only; thermal patterns there are not moisture determinations.

Equipment and Operator

Aircraft: DJI Matrice 4TD. Thermal camera: radiometric, uncooled VOx microbolometer, 640 × 512 pixels, spectral range 8–14 μm, thermal sensitivity (NETD) ≤ 50 mK at f/1.0, 45° diagonal field of view; manufacturer's stated accuracy ±2 °C (±3.6 °F) or ±2%, whichever is greater (high-gain mode). Operator: FAA Part 107 Certified Remote Pilot (certificate number available on request); ITC Level I sUAS Certified Infrared Thermographer (certificate number available on request).



Appendix: Inspection Conditions & Roof Sections

Technical basis for the thermal analysis: inspection conditions and the roof sections and materials assumed for each area.

Preview of CSRA's roof-section analysis. The suspect areas counted here are drawn on the screening map (last page); in a client project each one is reviewed by the thermographer.

Inspection conditions check (roof moisture): PASS. Each rule compares station weather with the thresholds set for this inspection type.

Check	Observed	Threshold	Result
Time since measurable rain	101.7 h	fail < 24 h; warn < 48 h	PASS
Sun on the roof the day before	100% of daytime observations clear	fail < 20%; warn < 50%	PASS
Wind during thermal flight	0 mph (0 kt)	fail > 15.5 mph (13.5 kt); warn > 11.5 mph (10 kt)	PASS
Gusts during thermal flight	0 mph (0 kt)	fail > 23 mph (20 kt); warn > 17.2 mph (15 kt)	PASS
Cloud cover during thermal flight	0/8 (clear)	fail > 6/8; warn > 4/8	PASS
Air temp minus dew point (lowest during flight)	21.9 °F (12.2 °C)	fail < 1.8 °F (1.0 °C); warn < 5.4 °F (3.0 °C)	PASS

Temperatures in this report are the camera's own surface readings, not adjusted for surface type or sky reflection; they are used to compare areas with each other. Masked areas (equipment, steep views, material transitions) are qualitative only. Temperatures shown on narrow features, less than about 6 in wide (such as pipes, flashing and small vents), are approximate.

Findings by roof section. Each roof section is compared with itself, so different roof materials are not mixed.

Section	Material	Section normal (apparent)	Spread	Suspect areas	Area flagged
Section 1	Ballast (rock)	Limited: observed patterns only	±1.6 °F	7 observed	not counted (observed only)
Section 2	TPO / PVC	53.4 °F (11.9 °C)	±1.9 °F	12	304 sq ft
Section 3	Painted metal	Limited: observed patterns only	±1.8 °F	4 observed	not counted (observed only)

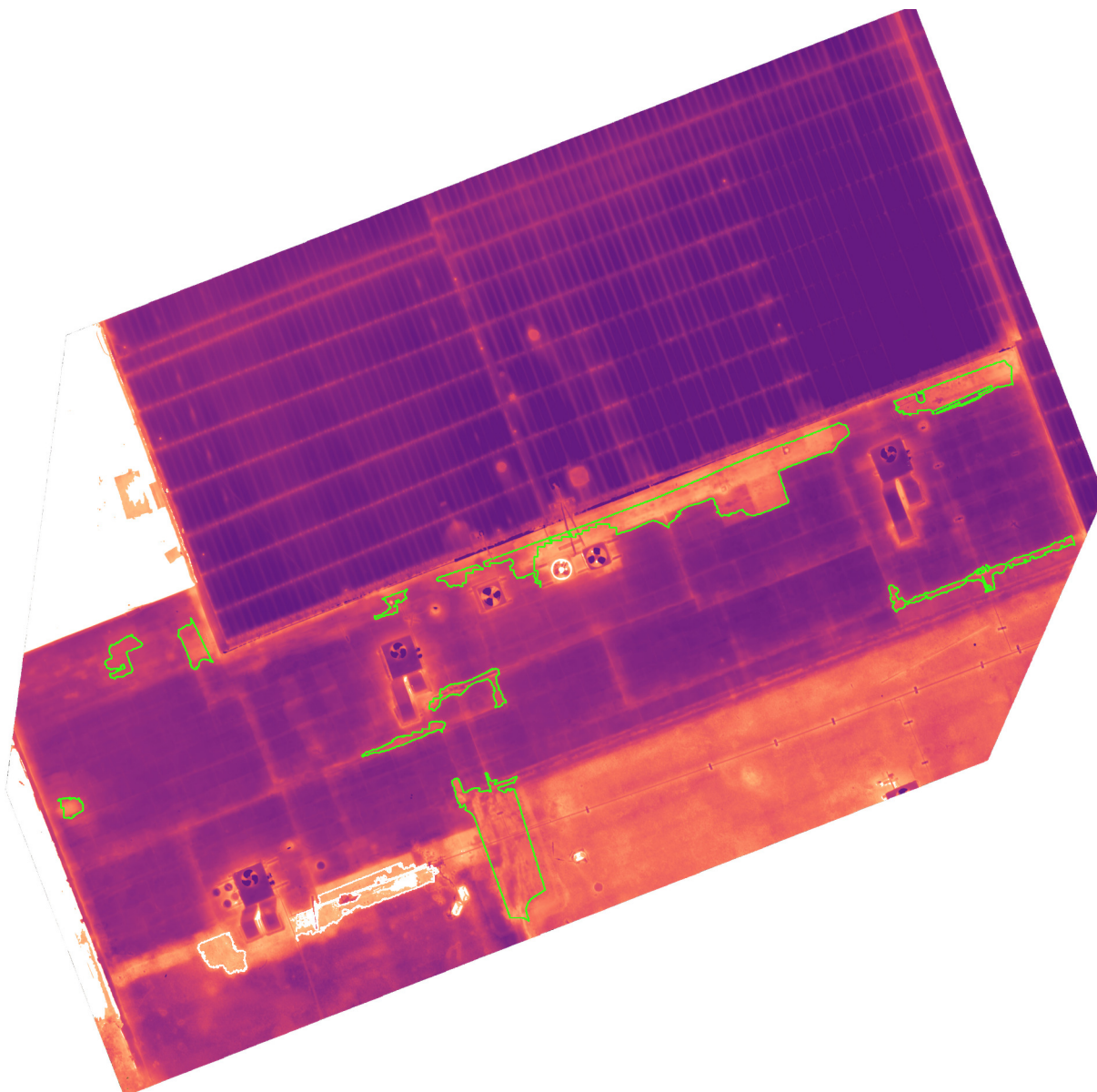
Suspect areas are spots noticeably warmer than the rest of their roof section; each one is reviewed by the thermographer.

Moisture-meter or invasive testing is required to confirm subsurface conditions.

Limited surfaces: Section 1: stone ballast can even out or hide temperature differences from wet insulation below, so patterns there are observations, not moisture readings; Section 3: on metal roofs, wet insulation below often does not show clearly at the metal surface, so patterns there are observations, not moisture readings. The patterns found there are drawn on the screening map as observations worth checking.



Screening map



Screening marks (12, outlined in green): spots warmer than the rest of their roof section, the suspect areas counted in the table above; 3 observed patterns on stone ballast (white dashed): not moisture readings and not counted; 8 of the 23 lie outside the cropped sample area and are not shown. The thermographer reviewed each one; the findings are the ones described in the report body.