

# Sample Report

## Hospital, Commercial and School Facilities

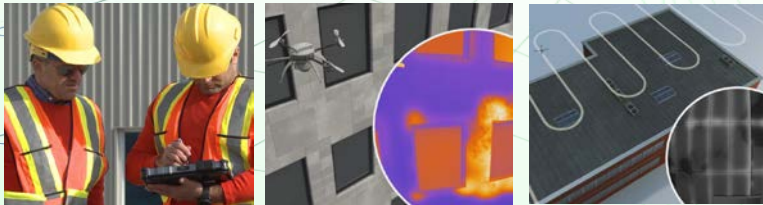
### SkyBEAM Roof Diagnostic Survey Report

Building ABC  
Street 123  
City, State



#### Company Logo

**TREMCO**  
ROOFING & BUILDING MAINTENANCE



Tremco Roofing and  
Building Maintenance  
3735 Green Road  
Beachwood, OH, 44122

Tremco Roofing and  
Building Maintenance  
50 Beth Neilson Dr.  
Toronto, ON, CA

## Dates

Day Time Flight: July 4, 2016  
Night Time Flight: July 4, 2016

## Environmental Conditions

DAYTIME	NIGHT TIME (Thermal)
Not Recorded	Not Recorded
Wind: < 20 kph	Wind: < 5 kph
High Temperature: 28°	High Temperature: 19°
Low Temperature: 27°	Low Temperature: 17°
Relative Humidity: 28%	Relative Humidity: 53%
Altitude: 75m	Altitude: 55m

## Inspection Equipment

Unmanned Aerial System: Aeryon Labs SkyRanger  
Thermographic Camera: FLIR Quark

## Inspection Personnel

Director of Operations: Ian Hannah  
Pilot: Jordan McPhail  
Ground Supervisor: Jason Eaton

## Thermographer

Christopher J. Spagnola  
Certified ASNT TC Level II Thermographer

## Drawings

TITLE PAGE	
SURVEY INFORMATION	
INVESTIGATION SUMMARY	
SHEET A	AERIAL OVERVIEW IMAGE OF ROOF
SHEET B	THERMAL OVERVIEW IMAGE OF ROOF
SHEET C	ROOF PLAN
SHEET D	AREA OF SURVEY 1
SHEET E	AREA OF SURVEY 2
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SHEET G	AREA OF SURVEY 4
SUSPECT AREA SUMMARY	
SUSPECT AREA SUMMARY (CONTINUED 1)	
SUSPECT AREA SUMMARY (CONTINUED 2)	
SUSPECT AREA SUMMARY (CONTINUED 3)	



**NOTE**  
Our thermal images and subsequent report are limited to the gathering, displaying and describing of the building's thermal signatures and temperatures at the time of inspection. We do not comment on the specific causal factors or possible ramifications these thermally detected abnormalities may indicate. Our descriptions of thermal anomalies are limited to what they appear to represent. For example air leakage, interstitial moisture, missing insulation etc. Tremco does not verify these descriptions with secondary physical or visual inspection nor do we determine or imply the cause of the thermal patterns reported. The thermal data in the infrared images displayed and discussed in the summary report do not purport to identify all building related problems or imply that others do not exist.



## SkyBEAM Building Asset Assessment Objectives

### INTRODUCTION

The SkyBEAM Building Envelope Asset Assessment represents an excellent value from a financial and asset management perspective as it focuses on in-depth analysis intended to reduce the risk of the need for major building envelope repairs and extend the performance life of the existing wall and roofing inventory assets. All work performed is entered into the On-Line Roof Management Program database (myoli.com), providing complete historical documentation and custom reports to assist with service delivery and long term planning.

### How an Infrared Survey Works:



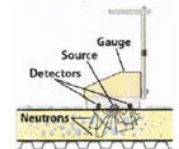
During the daytime, wet roof insulation absorbs more solar energy from the sun than dry roof insulation. During the nighttime, after the roof surface cools, the wet roof insulation will retain more solar energy than dry insulation and these temperature differences are detected by the infrared camera.

The wet roof areas are marked on the roof surface with visible paint markings. The wet roof areas are verified through core cuts and/or roof moisture density gauge.

### How a Moisture Density Meter Works:

During the daytime, readings are taken and recorded in random locations and at wet areas found by the infrared camera.

Fast neutrons are emitted from the source in the Roof Moisture Density Gauge into the roof system. The presence of hydrogen in the roof system slows the neutrons. These slowed neutrons as well as the fast neutrons are detected by the Roof Moisture Density Gauge "detectors".



A reading is displayed in the digital readout and gets recorded. Core cuts are taken to determine a baseline for dry roof materials. Then wet roof areas are marked on the roof surface with visible paint markings.

# BENEFITS OF THE SKYBEAM SYSTEM

SkyBEAM building envelope inspection service is a revolutionary new way to monitor your building's roof and walls for damage and energy loss. Using the latest in camera and drone technologies, SkyBEAM provides a previously unavailable level of understanding about the health of your building, all more safely and cost-effectively than was available in the past. SkyBEAM gives you:

## **Enhanced Worker Safety**

– With SkyBEAM, there is no need to send workers into harm's way on rooftops or scaffolding to inspect roofing and other hard to reach parts of your building.

## **Lower Costs**

– SkyBEAM eliminates the need for expensive equipment such as swing stages and boom trucks, and accelerates the inspection process significantly, reducing the time required from several days for a traditional manual inspection to a matter of minutes for a drone flight.

## **Better Data**

– SkyBEAM's cutting edge technology allows for the most detailed and accurate building inspection reports available on the market today, reducing the need for verification and avoiding potentially costly oversights of developing problems.

## Investigation Summary

2 X AREA OF CONCERN  
 2 X DAMP AREA  
 53 X WET INSULATION

### Total Roof Summary

Total Roof Area (sq.ft.*)	# of Suspect Areas	Total Area (sq.ft.)	% of Roof That May Be Affected
398,071	57	34,042	8.55%

### Roof Summary by Section

Roof Section	Suspect Area (sq.ft.)	Roof Section Area (sq.ft.*)	% of Roof Section Affected
103	725.00	3,722.00	19.48%
105	234.00	286.00	81.82%
106	45.00	2,187.00	2.06%
107	536.00	1,790.00	29.94%
108	48.00	3,641.00	1.32%
114	3,300.00	3,472.00	95.05%
121	103.00	1,808.00	5.70%
126	480.00	1,547.00	31.03%
132	194.00	1,113.00	17.43%
201	723.00	4,449.00	16.25%
203	1,936.00	2,463.00	78.60%
205	548.00	2,309.00	23.73%
207	1,148.00	1,148.00	100.00%
210	324.00	3,370.00	9.61%
212	1,612.00	13,540.00	11.91%
212-A	267.00	267.00	100.00%
216	111.00	1,143.00	9.71%
301	63.00	1,553.00	4.06%
403	336.00	4,556.00	7.37%
408	688.00	3,320.00	20.72%
502	450.00	2,740.00	16.42%
707	2,527.00	5,955.00	42.43%
708	562.00	1,881.00	29.88%
Total	17,082.00	199,036.00	8.58%





SUSPECT AREA TYPES		PROBES		OBSERVATIONS		ROOF TYPES	
	GENERAL BOUNDARY		DAMP AREA		PONDED WATER		METAL ROOF
	WET INSULATION		AREA OF CONCERN - NOT VERIFIED				SLOPE
	R.I.M (RANDOM INTERMITTENT MOISTURE)		MOISTURE / SURFACE PROBE (DRY)		MOISTURE / SURFACE PROBE (DAMP)		SKYLIGHT



**SAMPLE AERIAL IMAGE  
HOSPITAL ROOF**

Project No.: Sample	Sheet No.:
Drawn By: ISW	<b>A</b>
Date: 30/08/2016	

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SUSPECT AREA TYPES		PROBES		OBSERVATIONS		ROOF TYPES	
GENERAL BOUNDARY	DAMP AREA	MOISTURE / SURFACE PROBE (DRY)	PONDED WATER	METAL ROOF			
WET IN INSULATION	AREA OF CONCERN - NOT VERIFIED	MOISTURE / SURFACE PROBE (DAMP)	SLOPE	SKYLIGHT			
R.I.M (RANDOM INTERMITTENT MOISTURE)							



**SAMPLE THERMAL IMAGE  
HOSPITAL ROOF**

Project No.:	Sheet No.:
Drawn By: ISW	<b>B</b>
Date: 04/02/2017	

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SUSPECT AREA TYPES		PROBES	OBSERVATIONS	ROOF TYPES
GENERAL BOUNDARY	DAMP AREA	MOISTURE / SURFACE PROBE (DRY)	PONDED WATER	METAL ROOF
WET INSULATION	AREA OF CONCERN - NOT VERIFIED	MOISTURE / SURFACE PROBE (DAMP)	SKYLIGHT	SLOPE
R.I.M. (RANDOM INTERMITTENT MOISTURE)				



AREA OF SURVEY 1  
123 Sample St

Project No.: Sample	Sheet No.:
Drawn By: ISW	D
Date: 30/08/2016	





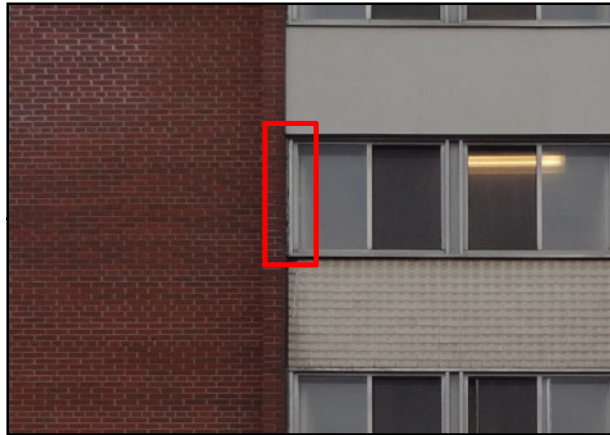
SUSPECT AREA TYPES		PROBES		OBSERVATIONS		ROOF TYPES	
GENERAL BOUNDARY	DAMP AREA	MOISTURE / SURFACE PROBE (DRY)	MOISTURE / SURFACE PROBE (DAMP)	PONDED WATER	METAL ROOF	SLOPE	SKYLIGHT
WET INSULATION	AREA OF CONCERN - NOT VERIFIED						
R.I.M. (RANDOM INTERMITTENT MOISTURE)							



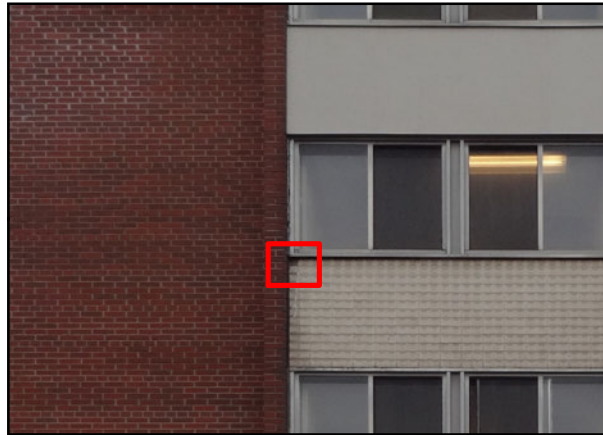
AREA OF SURVEY 2  
123 Sample St

Project No.: Sample	Sheet No.:
Drawn By: ISW	E
Date: 30/08/2016	

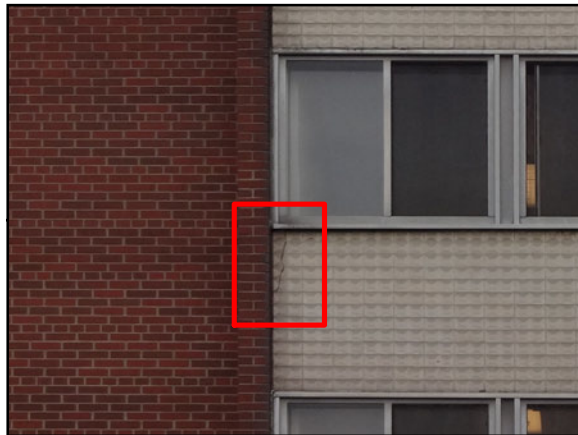
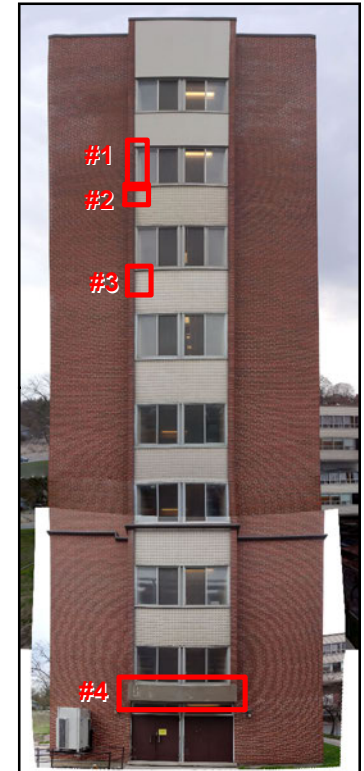




#1: Caulking failed



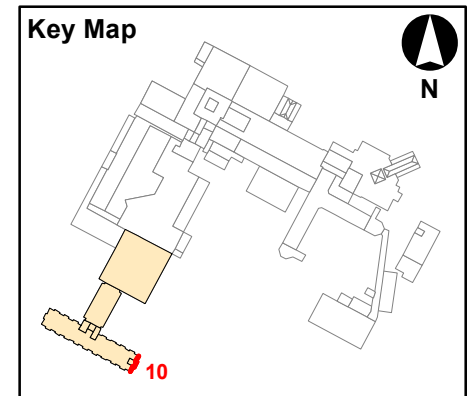
#2: Tiling is falling off.



#3: Cracked tiling

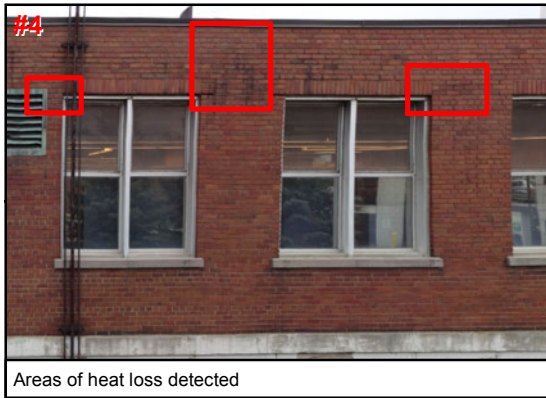


#4: Concrete spalling

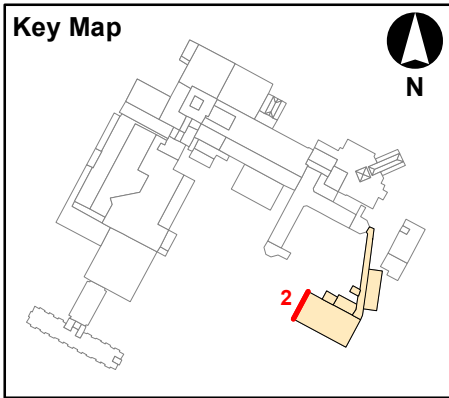
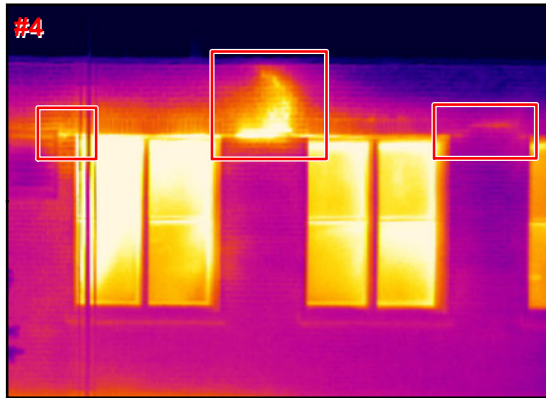




Windows appear to be losing heat



Areas of heat loss detected



**Additional Sample Imagery  
of  
Commercial and School Facilities**





Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

STANDARD KEY OF SYMBOLS

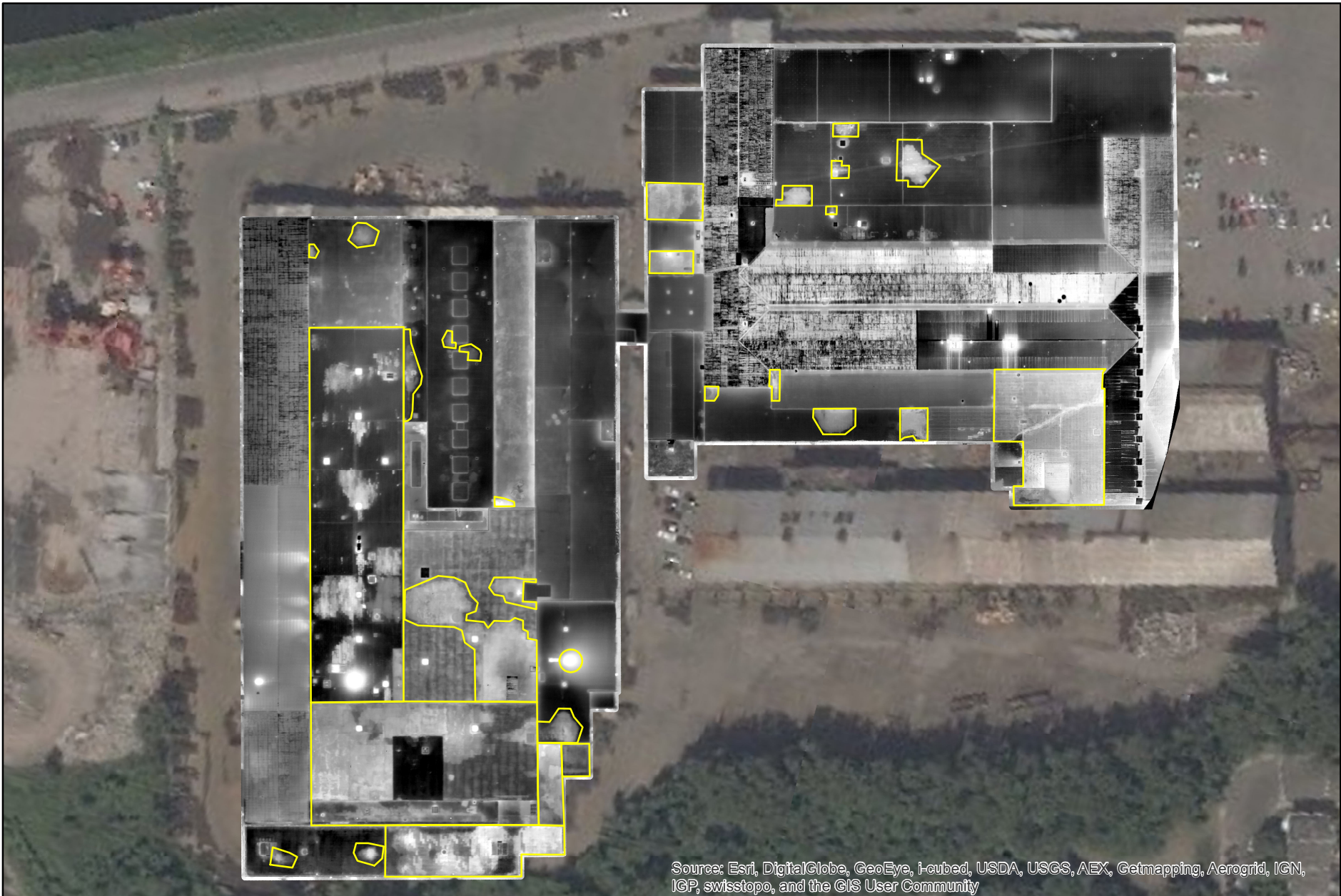
AREA DESIGNATION	THERMOGRAM	WET INSULATION	N.I.C.
DRY CUT	TRACE CORE	WET/DAMP INTERMIXED	MOISTURE DENSITY READING
WET CUT	PHOTOGRAPH	DAMP AREA	MOISTURE DENSITY GRID



SAMPLE AERIAL IMAGE  
COMMERCIAL ROOF

Project No.:	Sheet No.:
Drawn By: I2S	C
Date: 04/02/2017	





Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

STANDARD KEY OF SYMBOLS

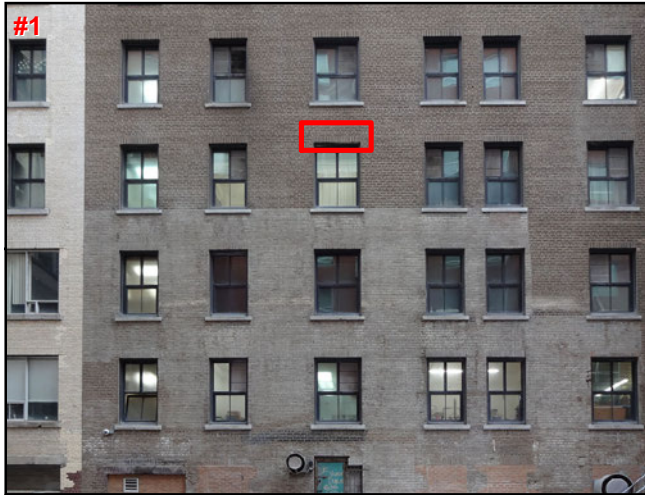
AREA DESIGNATION	THERMOGRAM	WET INSULATION	N.I.C.
DRY CUT	TRACE CORE	WET/DAMP INTERMIXED	MOISTURE DENSITY READING
WET CUT	PHOTOGRAPH	DAMP AREA	MOISTURE DENSITY GRID



SAMPLE THERMAL IMAGE  
COMMERCIAL ROOF

Project No.:	Sheet No.:
Drawn By: I2S	D
Date: 04/02/2017	





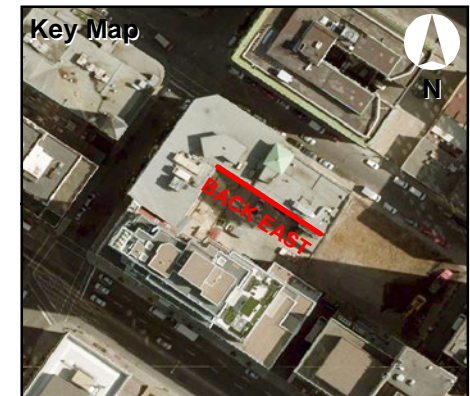
Steel lintel corrosion.



Missing and damaged brickwork.

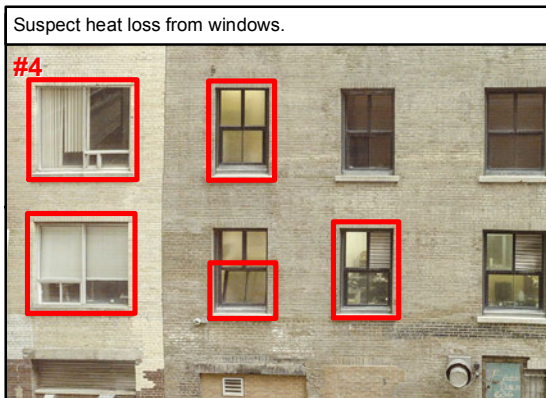
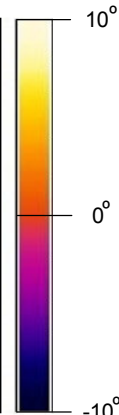
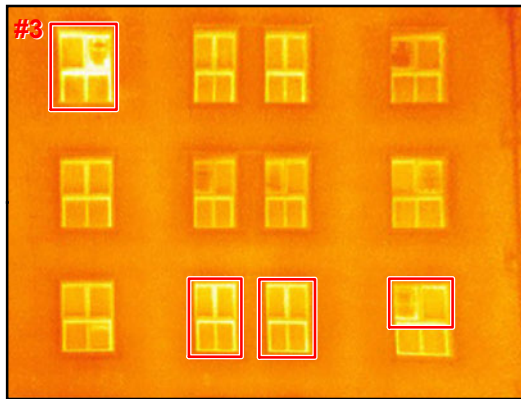


Deficiency in wall fabric increases deterioration of mortar and brick, and promotes water entry.

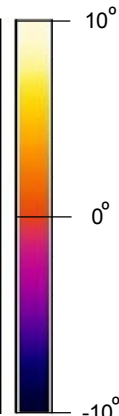




Suspect heat loss from windows.



Suspect heat loss from windows.







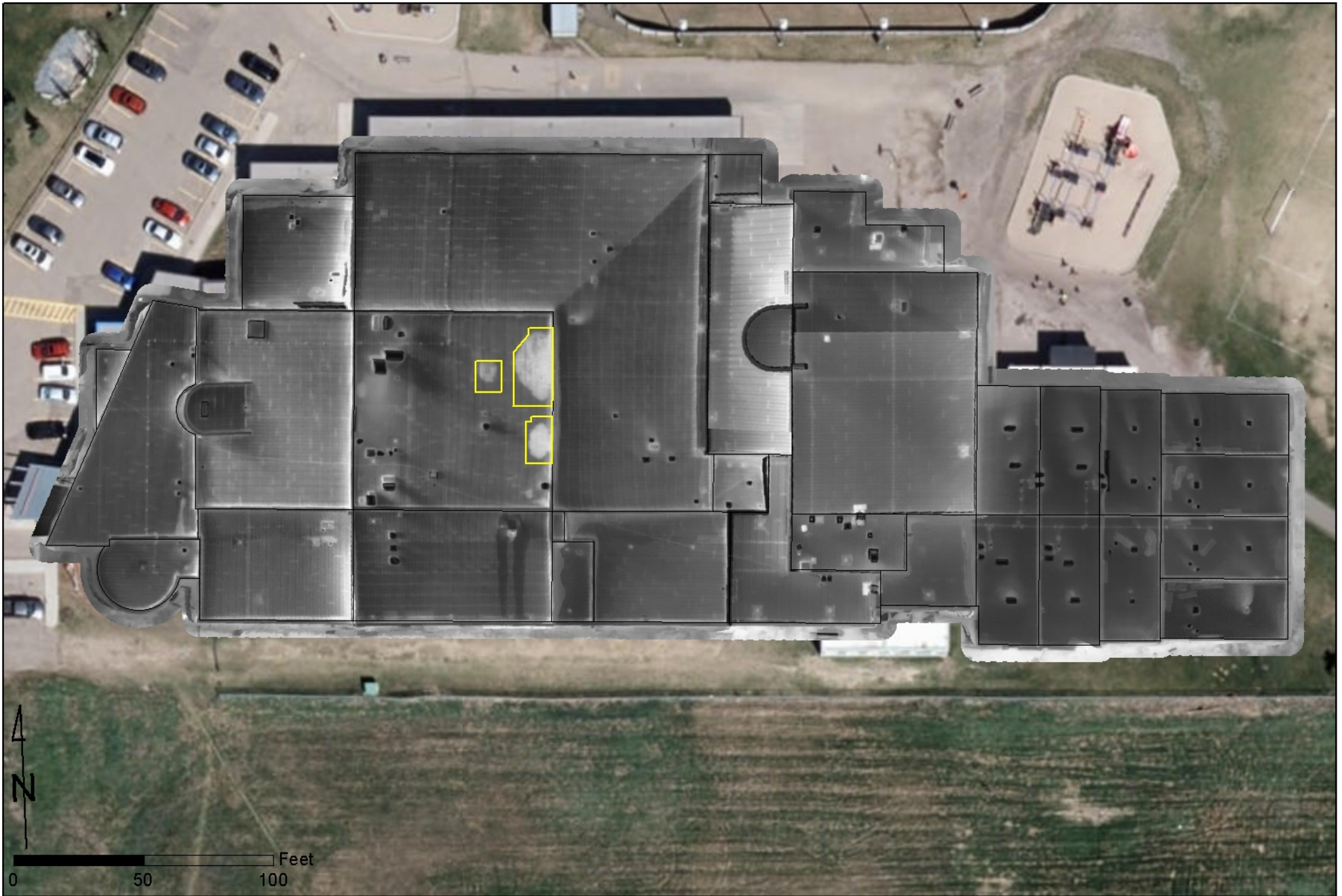
SUSPECT AREA TYPES		PROBES		OBSERVATIONS		ROOF TYPES	
	GENERAL BOUNDARY		DAMP AREA		PONDED WATER		METAL ROOF
	WET IN INSULATION		AREA OF CONCERN - NOT VERIFIED		MOISTURE / SURFACE PROBE (DRY)		SLOPE
	R.I.M.(RANDOM INTERMITTENT MOISTURE)		MOISTURE / SURFACE PROBE (DAMP)		SKYLIGHT		



**SAMPLE AERIAL IMAGE  
SCHOOL ROOF**

Project No.: JohnP aull1	Sheet No.: <b>B</b>
Drawn By: ISW	
Date: 01/02/2017	





SUSPECT AREA TYPES		PROBES		OBSERVATIONS		ROOF TYPES	
	GENERAL BOUNDARY		DAMP AREA		PONDED WATER		METAL ROOF
	WET IN INSULATION		AREA OF CONCERN - NOT VERIFIED		MOISTURE / SURFACE PROBE (DRY)		SLOPE
	R.I.M.(RANDOM INTERMITTENT MOISTURE)		MOISTURE / SURFACE PROBE (DAMP)		SKYLIGHT		



<h2>SAMPLE THERMAL IMAGE SCHOOL ROOF</h2>		Project No.: JohnP aull1	Sheet No.:
		Drawn By: ISW	<b>B</b>
		Date: 01/02/2017	

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