

Building thermography survey

Calder Vale Primary School, infant block



Building	Calder Vale Primary School, School Lane, Calder Vale
Client	Calder Vale Primary School (Marlbury Borough Council)
Report reference	RK-2026-0377
Survey date	19 Feb 2026
Thermographer	Anika Sorensen, ISO 9712 Level 2 thermographer, BEng (Hons)

None: 0 Minor: 0 Moderate: 0 Significant: 0 Unsafe: 0

[Sample report](#)

Document control

Status code: S2

Revision	Date	Status	Description	Author	Checked	Approved
P01	24 Feb 2026	Draft	Draft for internal check	AS	RA	
A	26 Feb 2026	Issued	First issue to client	AS	RA	RA

Distribution

Name	Organisation	Copies
Calder Vale Primary School (Marlbury Borough Council)	Calder Vale Primary School (Marlbury Borough Council)	1

This report has been prepared for the client named on the cover and may not be relied upon by any other party without the written agreement of Report Kit 360. The issue table above records every revision; the latest row is the current issue.

Contents

Document control	2
1 Objective and survey type	4
2 Environmental conditions	5
3 Building information	6
4 Equipment	7
5 Methodology and limitations	8
6 Thermographer	10
Thermogram sheet	11
7 Unsafe conditions	14
8 Conclusions and recommendations	15
9 Comparison with previous survey	16
Appendix A — Temperature readings	17
Declaration	18

1 Objective and survey type

The school asked for a qualitative thermographic survey of the infant block to locate missing or displaced insulation, thermal bridges and air leakage paths before a planned refurbishment of the external walls and windows. The survey was carried out externally and internally before sunrise on 19 February 2026 with the heating at steady state and a temperature difference of 16 °C.

Survey

Survey type	qualitative	Date and time	19 Feb 2026 06:30 to 08:15
Internal / external	external and internal	Pressurisation used	none
Acceptance criteria agreed before survey	Qualitative: anomalies classified by severity; quantitative TI check at T01 only		

2 Environmental conditions

Conditions

Internal air temperature (°C)	20.50	External air temperature (°C)	4.50
Temperature difference ΔT (°C)	16	Wind speed (m/s) and direction	2.5 m/s N
Precipitation	none	Sky / cloud	overcast
Solar loading in the previous 12 hours	none	Heating status	on, steady state
Relative humidity (%)	82%		

ΔT check (internal – external)

16.0 °C

Survey condition limits

External fabric surveys need a temperature difference of at least 10 °C across the fabric for several hours, no precipitation or mist, wind below about 5 m/s and no strong solar loading or reflected cold sky. Air-leakage surveys under depressurisation need at least 5 °C. Where conditions fell short, say so here and in the limitations.

Conditions were within the limits of BS EN 13187 for a qualitative external survey: overcast sky, no rain for 24 hours, wind 2.5 m/s and no solar loading. The west elevation was imaged last as the sky began to lighten; the images were checked for reflected sky and none was found.

3 Building information

Building

Address	Calder Vale Primary School, School Lane, Calder Vale, CV1 4IK	Building type and use	Single-storey primary school, infant block, 1968 with a 2004 extension
Construction (walls / roof / floor / glazing)	Cavity brick walls (1968, uninsulated cavity) / insulated cavity (2004); flat felt roof with loft insulation; solid ground floor; aluminium double glazing	Orientation	Main elevations face north and south
Approximate age	58 years (1968); extension 22 years	Heating system and status during survey	on, steady state
Recent works	Roof re-covered 2021; windows unchanged		



Figure 3.1 — Elevation or plan key showing thermogram locations

4 Equipment

Infrared camera

Make and model	FLIR T560	Serial number	FT560-004412
Lens / field of view	24° x 18°	Detector resolution (px)	640 x 480
Thermal sensitivity NETD (mK)	30	Spectral range (µm)	7.5 to 14
Last calibration	14 May 2025	Months since calibration	9

Other instruments

Air temperature / humidity meter	Testo 625, serial 41122098	Anemometer	Kestrel 3000, serial 1088421
Moisture meter	Protimeter Surveymaster	Blower door / fan (if used)	Not used
Reflected temperature method	Reflector method (crumpled foil), 4 °C externally, 20 °C internally		

5 Methodology and limitations

Thermograms were captured from the positions shown on the location key, with the camera set to the emissivity and reflected apparent temperature recorded on each sheet. Images were reviewed by comparing areas of similar construction under the same conditions; apparent anomalies caused by reflections, concealed pipes, cables or heat emitters have been identified and excluded where recognised.

Infrared thermography shows apparent surface temperature patterns at the moment of capture. It does not measure U-values directly, cannot see inside the construction, and depends on the temperature difference, wind, moisture and emissivity at the time. Quantitative values carry a stated uncertainty.

The boiler room and kitchen were excluded at the school's request. The internal face of the hall ceiling was not imaged because of the stage set. The emissivity of the painted render and the plastered internal surfaces was taken as 0.93; the aluminium window frames have a low and uncertain emissivity and apparent temperatures on them are not reported.

Anomalies are graded as follows:

Colour	Rating	Meaning
	None	No anomaly: the pattern is consistent with the construction and conditions.
	Minor	Minor anomaly: small or expected deviation (for example a standard junction); note only.
	Moderate	Moderate anomaly: a clear deviation such as a localised thermal bridge or a small area of missing insulation; plan remedial work.
	Significant	Significant anomaly: a large or repeated deviation, a Thermal Index below the agreed threshold, or evidence of moisture or air leakage; investigate and remedy.
	Unsafe	Unsafe condition: an electrical, fire or structural hazard revealed by the survey; report immediately to the responsible person.

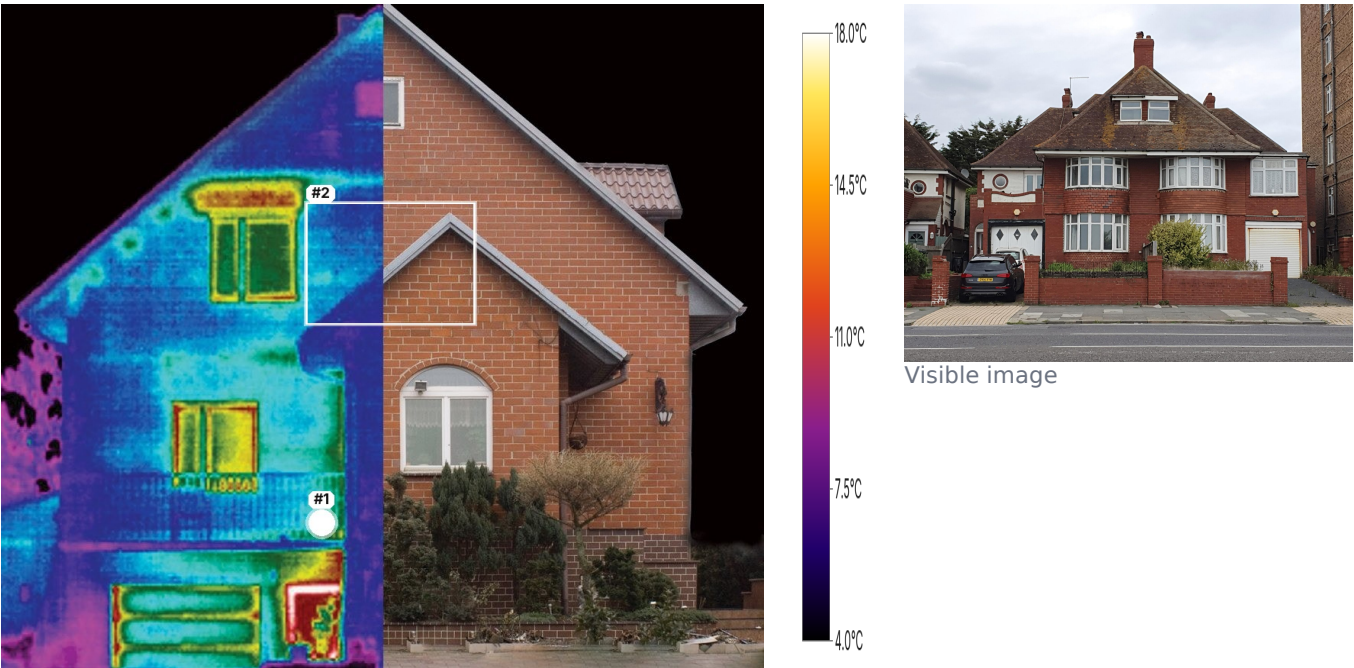
6 Thermographer

Personnel

Thermographer	Anika Sorensen	Qualification / certification level	Level 2
Report writer	Anika Sorensen	Attending persons	School caretaker

Thermogram sheet

Thermogram T01



Infrared image — Ironbow palette

Scale	4.0 to 18.0 °C	Emissivity (ε)	0.93
Reflected temperature	4.0 °C	Ambient temperature	4.5 °C
Distance	6.0 m	Relative humidity	82 %
Classification	Thermal bridge		
Severity	Moderate		

#	Label	Type	Position	Temperature
S1	Sp1	Spot	42%, 78%	11.6 °C
S2	Bx1	Box	40%, 30%	5.8 °C

Interpretation

Continuous warm band at the wall and slab junction: uninsulated slab edge of the 1968 block. Not present on the 2004 extension.

Image record

Location / plan reference	North elevation, classrooms 2 to 3, plan reference N2	Elevation / orientation	North elevation, viewed from the playground
File name	IR_0219_0014.jpg	Date and time	2026-02-19 06:52
Distance to object (m)	6	Emissivity	0.93
Reflected apparent temperature (°C)	4	Level / span	11 °C / 14 °C

Table 1 — Thermal Index (quantitative surveys)

Parameter	Value	Unit
Internal surface temperature at anomaly, Tsi	14.20	°C
External air temperature, To	4.50	°C
Internal air temperature, Ti	20.50	°C
Thermal Index TI = (Tsi – To) / (Ti – To)	#CIRC!	
Threshold for this building type	0.75	
Assessment	#CIRC!	

External view of the north wall at the ground-floor slab edge. A continuous warm band 150 mm to 200 mm high runs along the junction of the wall and the slab, with the warmest readings below the classroom 3 window. This is a thermal bridge at the uninsulated slab edge of the 1968 construction; the pattern is continuous, follows the slab line and does not correlate with any service run. The 2004 extension to the right shows no such band because its slab edge is insulated.

Include insulation of the slab edge (or an insulated plinth) in the external wall refurbishment of the 1968 block. No action is needed for the 2004 extension.

7 Unsafe conditions

Unsafe conditions

Any condition found during the survey that presents an immediate electrical, fire or structural hazard is reported here and was notified to the responsible person on site at the time.

None observed.

8 Conclusions and recommendations

Seven anomalies were recorded: a continuous slab-edge thermal bridge to the 1968 block (moderate), displaced roof insulation above classrooms 2 and 3 seen as cold ceiling patches internally (moderate), air leakage at the window heads of classrooms 1 to 4 (minor), and a thermal bridge at the eaves on the north elevation (minor). No unsafe conditions were found. Priority: reinstate the roof insulation now (low cost), include the slab-edge insulation and window-head sealing in the refurbishment, and repeat the survey after the works under comparable conditions.

None: 0 Minor: 0 Moderate: 0 Significant: 0 Unsafe: 0

No rated items recorded.

The findings describe the condition observed on the inspection date. Buildings and assets change with time, weather and use; if a decision is to be made more than three months after the inspection date we recommend that the relevant areas are re-inspected.

9 Comparison with previous survey

Appendix A – Temperature readings

Table A.1 — Spot and area readings (exportable)

Thermogram	Spot / area	Min (°C)	Max (°C)	Mean (°C)	Note
T01	Sp1 slab edge	8.90	11.60	10.40	Warmest below classroom 3 window
T01	Bx1 wall above	5.20	6.40	5.80	Reference wall area
T02	Sp1 window head	15.10	17.80	16.60	Internal; air leakage
T03	Bx1 ceiling patch	13	15.20	14.10	Internal; displaced insulation

Declaration

I confirm that the survey was carried out as described and that the thermograms are unaltered apart from palette, level and span adjustments.

Prepared by

Anika Sorensen

ISO 9712 Level 2 thermographer, BEng (Hons)

Report Kit 360

Date: 26 Feb 2026

Checked by

Rhys Antrobus

BEng (Hons) CEng MCIBSE

Report Kit 360

Date: 26 Feb 2026