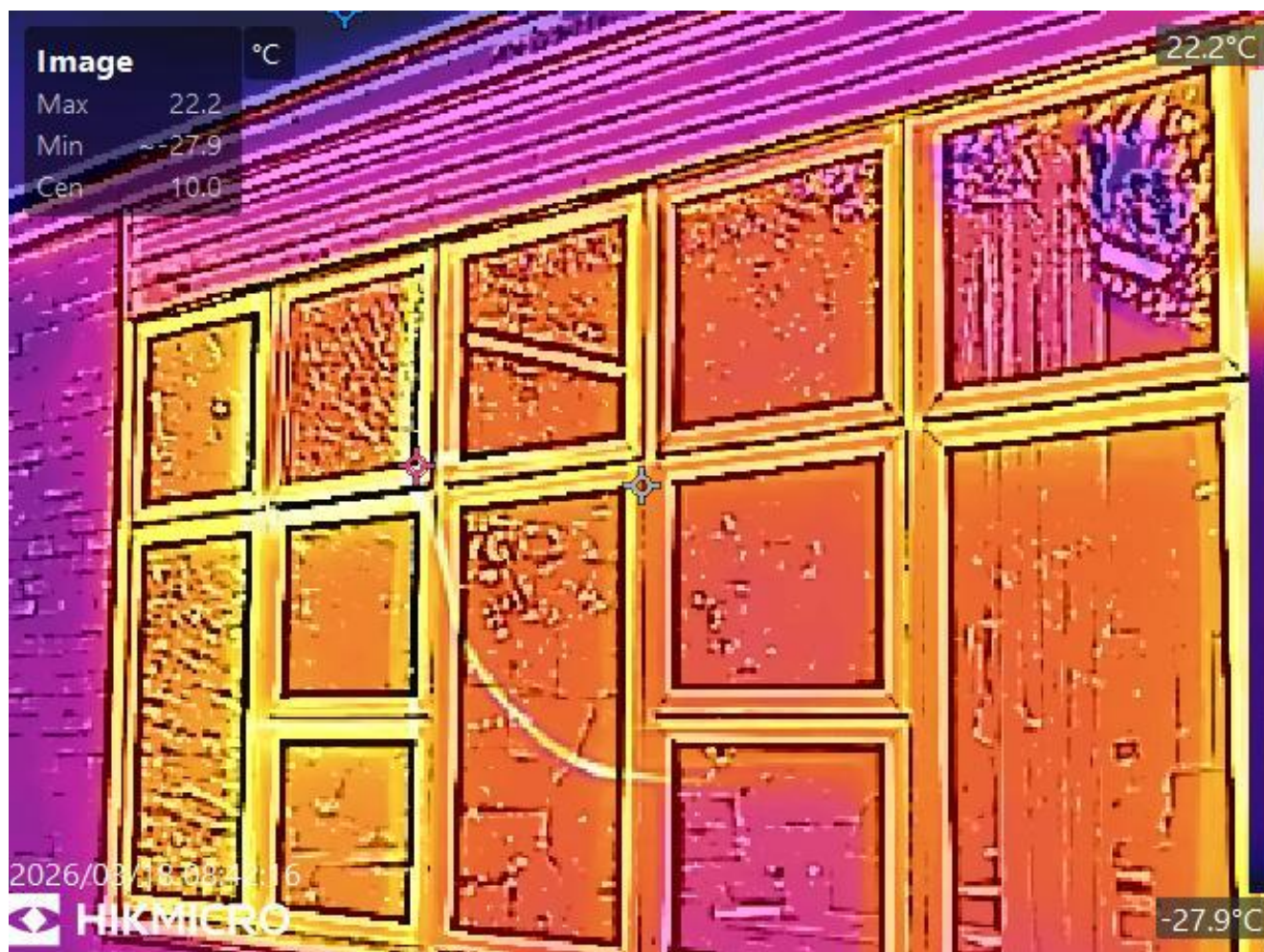


SaveEnergy

A fairer way to decarbonise

SaveEnergy Thermal Imaging Assessment Report for Bledlow Ridge School

14th September 2026



Thermal Imaging Survey

Introduction

Thermal imaging is a useful non-invasive method for identifying heat loss, insulation defects and thermal bridging in domestic properties; however, results are highly dependent on survey conditions and correct interpretation. For instance, an adequate internal–external temperature difference, ideally at around 8-10°C, is required to achieve meaningful thermal contrast. Surveys undertaken in mild conditions may fail to reveal defects and should not be interpreted as evidence of good thermal performance.

The thermal imaging camera uses an infrared sensor to detect heat and render this information as a representative image. A visual image is captured at the same time, enabling us to see clearly where the heat is present, or being lost, in each case. The camera is also able to produce a “fusion” image, which combines the key features of the visual image with the thermal data, which is the option that we use to present the findings in this report.

Environmental factors can significantly influence results. If the sun is shining on a building (even in winter) it may cause building elements to appear warmer than their true thermal condition, while wind can mask heat loss through convective cooling. External surveys are therefore most reliable in overcast, low-wind conditions with no recent solar exposure. Surface emissivity varies between materials, and reflective surfaces such as metals, glass and glossy finishes may display reflected temperatures rather than true surface heat loss. Internal heat sources including radiators, pipework and underfloor heating can also create misleading patterns.

Thermal bridges at junctions and structural elements are often inherent to the building design and do not necessarily indicate defects. Thermal imaging is a qualitative diagnostic tool and should not be relied upon in isolation when assessing building performance.

Please note that each image presents a relative illustration of heat and the hottest part of one image (presenting as white and orange) will therefore not necessarily be the same temperature at the hottest part in another image. While this is an important detail to remember, the overall findings of the thermal imaging process remain extremely helpful in identifying heat loss and opportunities to make improvements

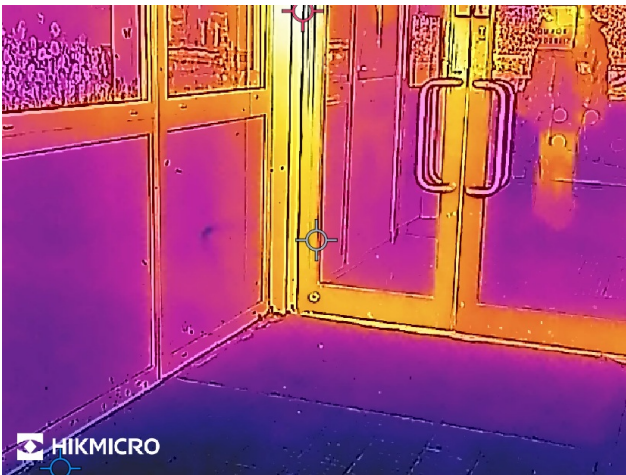
Finally, that when viewing thermal images, you need to bear in mind whether they are of interiors (where blue/purple cold parts are considered undesirable and represent heat loss) or external (where the hotter white and orange parts of the image are bad).



HM20260318085636



HM20260318085636
Aligned Visual Image



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HM20260318085648
Aligned Visual Image

Measurements

Image: Max. Temp.	15.7°C
Image: Min. Temp.	10.5°C
Image: Center Temp.	12.6°C

The front entrance of the school is mainly glazed, with insulated infill panels set into the PVC frame at ground level on this side. These frames are the hottest part of the image and demonstrate the heat loss that is occurring all around the school. The ambient temperature at the time that these photographs were taken was around 10°C, whereas the temperature of the frames is around 15°C – the frames are radiating heat into the atmosphere that is then having to be replaced with more heating, causing unnecessary heating bills and carbon emissions.



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Aligned Visual Image



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Aligned Visual Image



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Aligned Visual Image

Measurements

Image: Max. Temp.	15.0°C
Image: Min. Temp.	7.4°C
Image: Center Temp.	9.6°C

Moving round the school frontage, the story is consistent – the age and design of the window frames make them the thermally weakest part of the building. On inspection we were able to find evidence of the cavity walls having been filled, and the images confirm this as the walls are not radiating heat in the same manner as the windows.



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Aligned Visual Image



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Aligned Visual Image

Measurements

Image: Max. Temp.	20.2°C
Image: Min. Temp.	4.7°C
Image: Center Temp.	10.4°C

The metal frames of the doors are particularly good heat conductors and do not feature the thermal breaks and insulation that are now included in modern equivalent doors and windows, leading them to be particularly poor at stopping heat escaping. While the PVC frames in the previous images were measured at about 15°C, the metal door frame is at 20°C – room temperature, and is a significant source of heat loss.



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Aligned Visual Image



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Aligned Visual Image

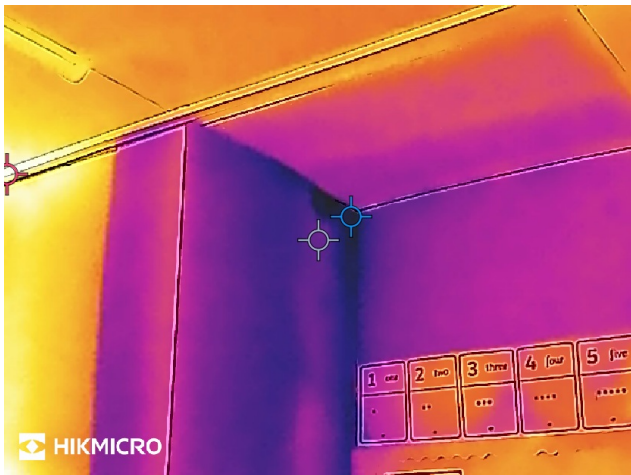
At the side of the school the story remains the same – cool walls (meaning that they are well insulated and are not conducting heat away from the building) and hotter window frames. As well as the generally low thermal performance of the windows, it would be worth checking the fit of individual windows in the frame – the top image here implies that there is hot air leaking from the joint between the window and its frame, and this is a relatively easy thing to fix with draught strip, or the realignment of the window mechanisms.



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Aligned Visual Image



HM20260318082032



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Aligned Visual Image

Measurements

Image: Max. Temp.	19.0°C
Image: Min. Temp.	10.9°C
Image: Center Temp.	12.6°C

These images show the inside and outside view of what I believe was formerly a classroom window, that has been boarded up on the inside (and has a radiator in front of the newly formed wall). It doesn't appear that any insulation was added behind this boarding, which is being heated up by the radiator and in turn, heating up the window that's behind it, causing the external window to be radiating heat at a faster rate than any other one in the building. The addition of insulation behind this wall would fix the issue, but would require the dismantling of at least part of the internal wall to do so.



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Aligned Visual Image



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Aligned Visual Image



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Aligned Visual Image

Measurements

Image: Max. Temp.	19.1°C
Image: Min. Temp.	13.8°C
Image: Center Temp.	15.1°C

Moving inside the building the story is the same – the windows are now appearing much colder than the walls and ceilings, and are demonstrating the heat loss referred to previously.



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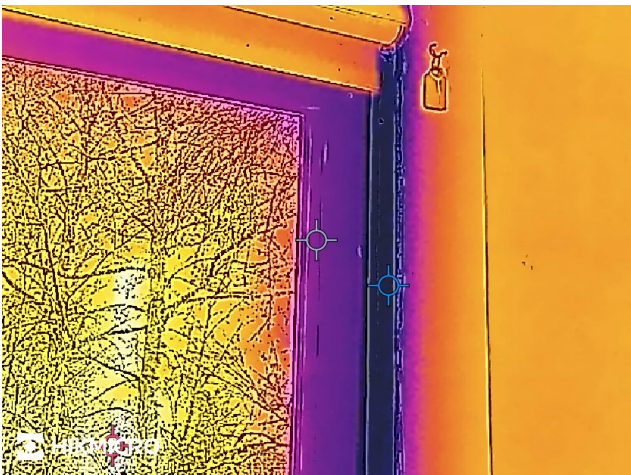
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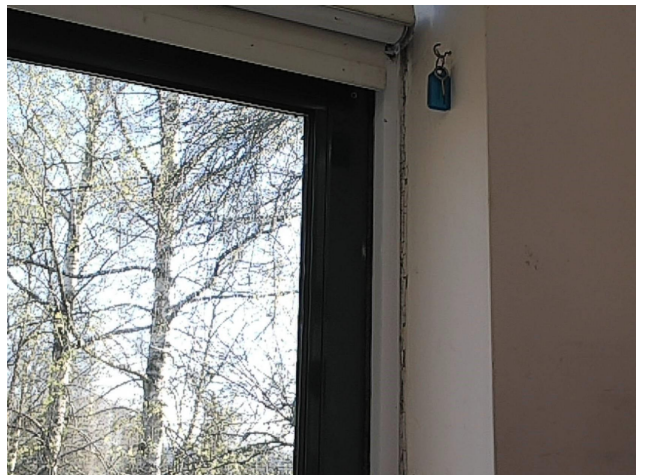
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Aligned Visual Image



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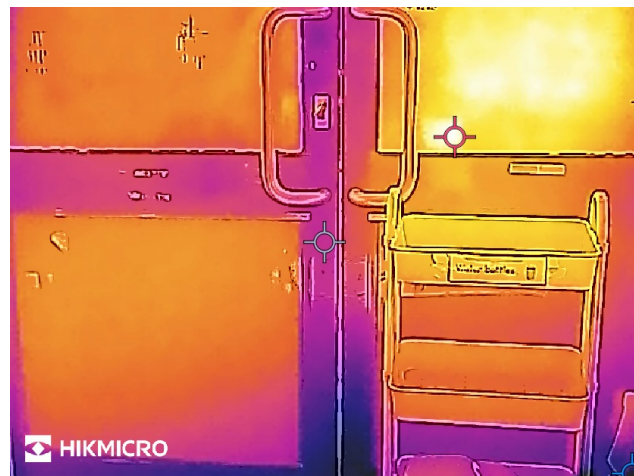


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Aligned Visual Image

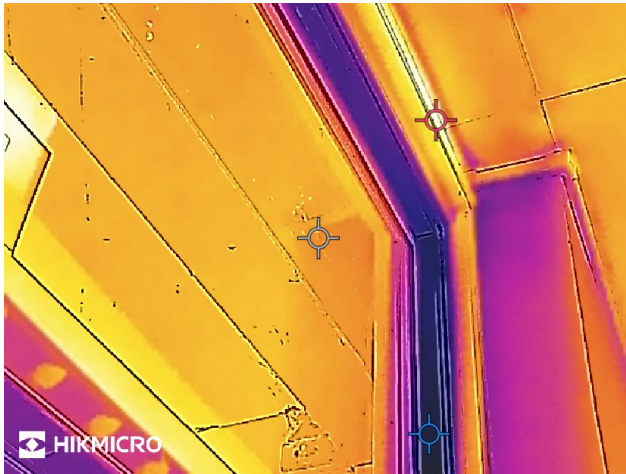
Measurements

Image: Max. Temp.	18.9°C
Image: Min. Temp.	12.1°C
Image: Center Temp.	14.1°C

These images confirm that the metal framed doors are particularly poor at heat retention. The mould that can be seen at the edge of the door is caused by water vapour condensing at the coldest point in the room, which is consistently this frame.



There are also opportunities to check the fit and seals of these doors, as in the case of the bottom images, it appears that daylight can be seen, enabling draughts to enter and chill the classroom. Fitting draught strip here, or adjusting the door alignment, would fix this problem, which can be caused by normal use over time. All the doors and windows would benefit from a check to make sure there is no unwanted ventilation at the joints.



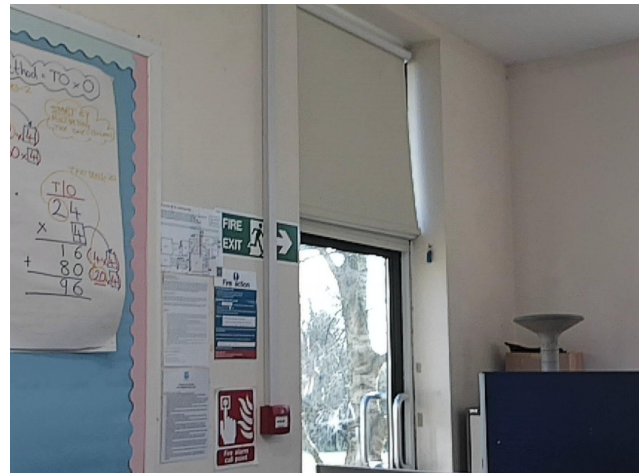
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Aligned Visual Image



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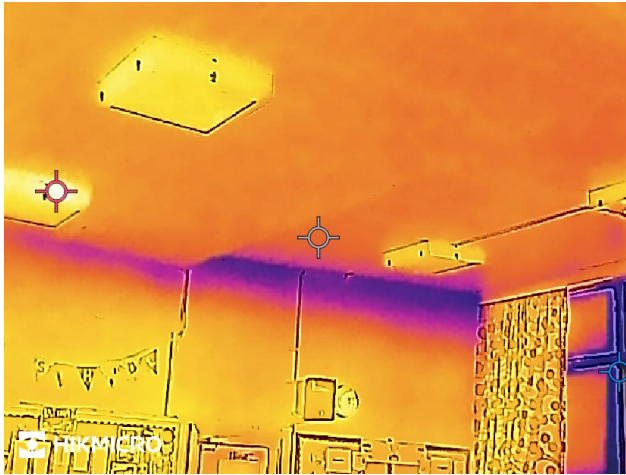


HM20260318082802
Aligned Visual Image

Measurements

Image: Max. Temp.	18.6°C
Image: Min. Temp.	12.5°C
Image: Center Temp.	15.4°C

In some cases, the thermal weakness of the frame is causing the surrounding wall and ceilings to be chilled as well, through a process called thermal bridging. Unfortunately, there are no real options to reduce this issue, short of replacement of the doors (and eventually windows too) with modern, highly efficient replacement units that use thermal breaks and insulation, along with low emissivity glass, which would make a noticeable difference to both the comfort of the rooms but also a reduction in heating bills.



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Aligned Visual Image



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Aligned Visual Image



HM20260318082621



HM20260318082621
Aligned Visual Image

Measurements

Image: Max. Temp.	20.6°C
Image: Min. Temp.	15.9°C
Image: Center Temp.	18.6°C

Finally, these images are from the main hall, showing that the top of the external wall is colder than the remainder. This is likely caused by the fact that cavity wall insulation is never installed to the very top of a wall, leaving these cold bands around the ceiling. Other than this, and the cold window frames that are consistent with the remainder of the building (which are being mitigated in this instance with thick curtains), there are no significant issues or opportunities for quick improvements that we can identify.

Summary and Conclusion

Overall the school is well insulated at the walls and in the roof, with the main thermal weak area being the windows and doors. This is really just a function of age – while they are double glazed units, by comparison to modern standards they are quite inefficient and are certainly responsible for a significant proportion of the heat lost from the building. In particular the metal doors, while being strong and robust, are very poorly internally insulated and are conducting heat at the fastest rate – these might be a candidate for targeted replacement over time, to more thermally efficient versions that are currently available. Once these have been dealt with, the PVC windows should also be replaced over time, with more thermally efficient modern windows.

There were two smaller opportunities for efficiency improvements also identified – either some of the windows were very slightly open on the morning of the inspection, or the seals and fit between the opening parts of the windows and the frames that they sit in may need some adjustment to ensure that there are no draughts or unwanted ventilation. Likewise, in the classroom with the double external doors, there was daylight showing in the gap where they meet, and this can be fixed with by adjusting the mechanisms or adding draught excluder to the edges.

Finally, in the classroom where the window has been walled over on the inside, there doesn't appear to be any insulation inserted in this wall, with the effect that the window is being heated from the inside and then radiating a disproportionate amount of heat into the atmosphere. Insertion of insulation behind the wall would make a significant difference and would no doubt make this classroom feel more comfortable during the colder days of the year, although this would be quite disruptive and would require the partial dismantling of the wall in question.