

Results

Explanation

The Thermograms below show a temperature span between 8 and 30 degrees Celsius (cooler = blue to warmer = red)), but **only** the thermographer is tasked with interpreting the images. The most relevant images have been included in this report and any anomalies present are highlighted and explained within this section.

In the context of this survey, thermography has been used to help establish the thermal condition of the building and thermal integrity of the building works.

Observe each image individually rather than compare them to each other, unless advised to do so by the notes. Any anomalies should be investigated as the most likely location of damp, water penetration, bridging, air leakage or other heat losses, as advised by the notes.

If external anomalies are consistent with issues on the corresponding internal walls, then the thermograms can be used to pinpoint the problem areas.

The camera can highlight very small temperature differences so attention should be given to the notes for each image or there is a chance of misinterpretation. The reason being that to an untrained person an image may appear to show a potential defect i.e. yellow/red area, when it may in fact be insignificant and merely due to the temperature scale used.

Numerous thermal images have been 'stitched' together due to the fact the camera's field-of-view is sometimes too small to capture the whole scene. As such, some images may look slightly distorted. Where it has not been possible to 'stitch', the individual images have been used.

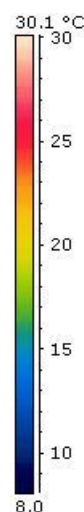


Figure1

(Example only)

Page 10 of 23

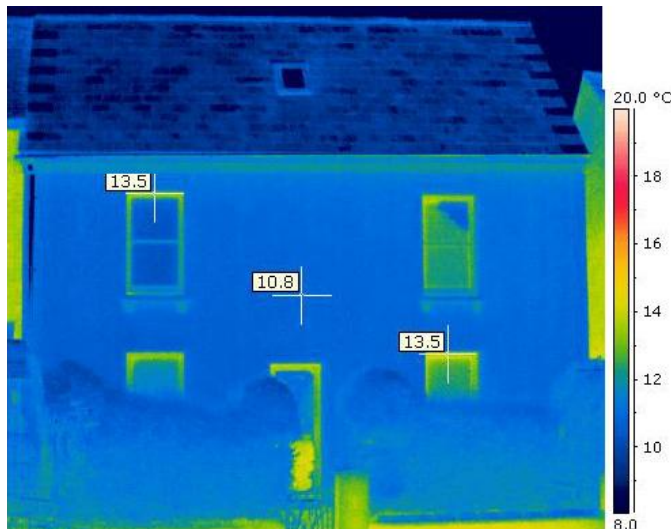
Grove Cottage



Thermogram 1 – Front

Distance and angle of camera: 10m 90 degrees

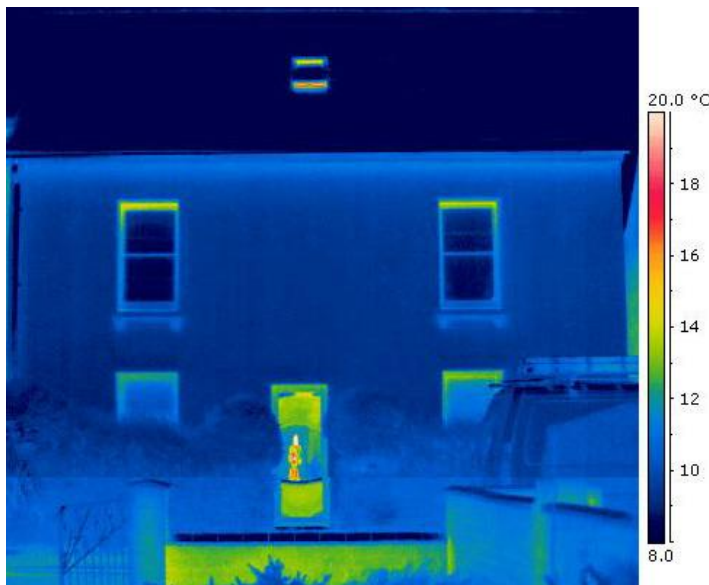
No noticeable heat losses.



Thermogram 2 – Front

Distance and angle of camera: 10m 90 degrees

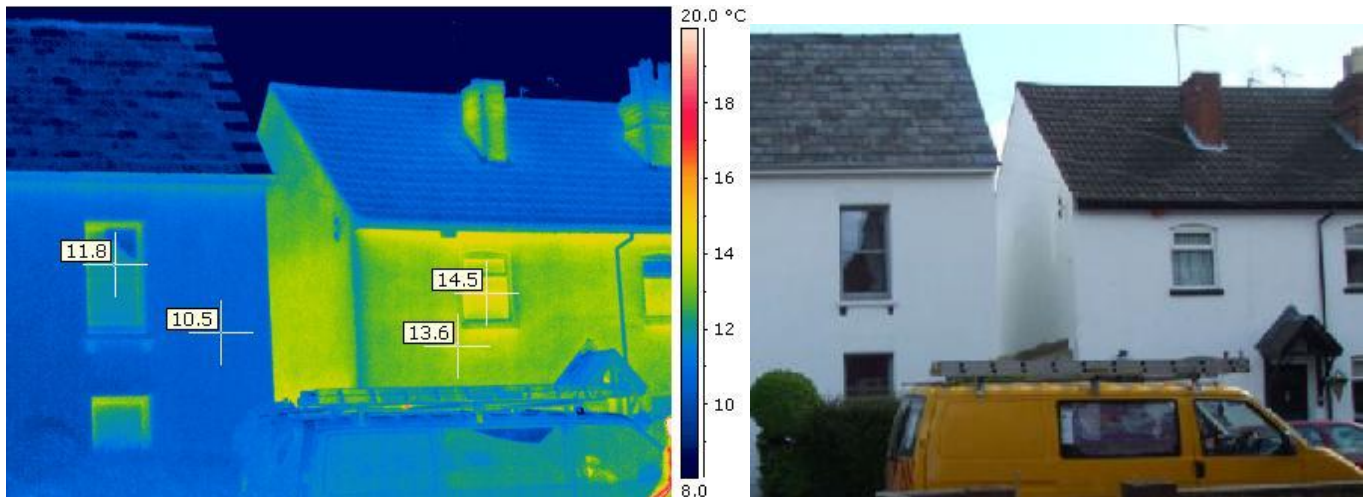
No evidence of thermal bridging or any other heat losses. The 'warmer' window frames are due to the shielding effect (shielding is when a surface is not affected by exposure to the cold night sky, this can make it appear warmer than the surrounding surfaces).



Thermogram 3 – Front

Distance and angle of camera: 10m 90 degrees

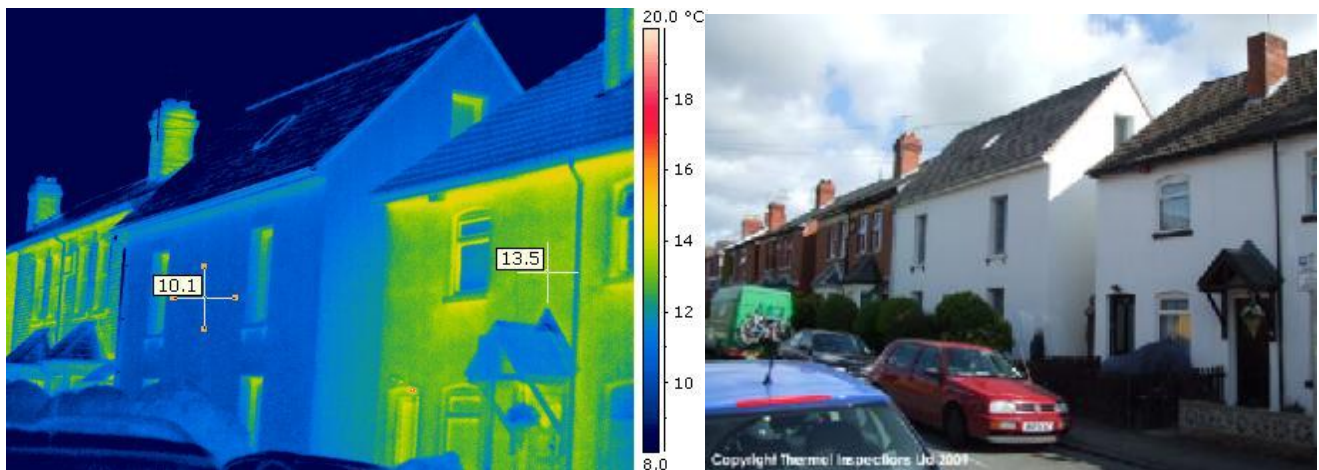
Here we can see the roof window and upstairs windows were now open. Ignore the reflection in the front door.



Thermogram 4 – Front, SE neighbour

Distance and angle of camera: 15m 45 degrees

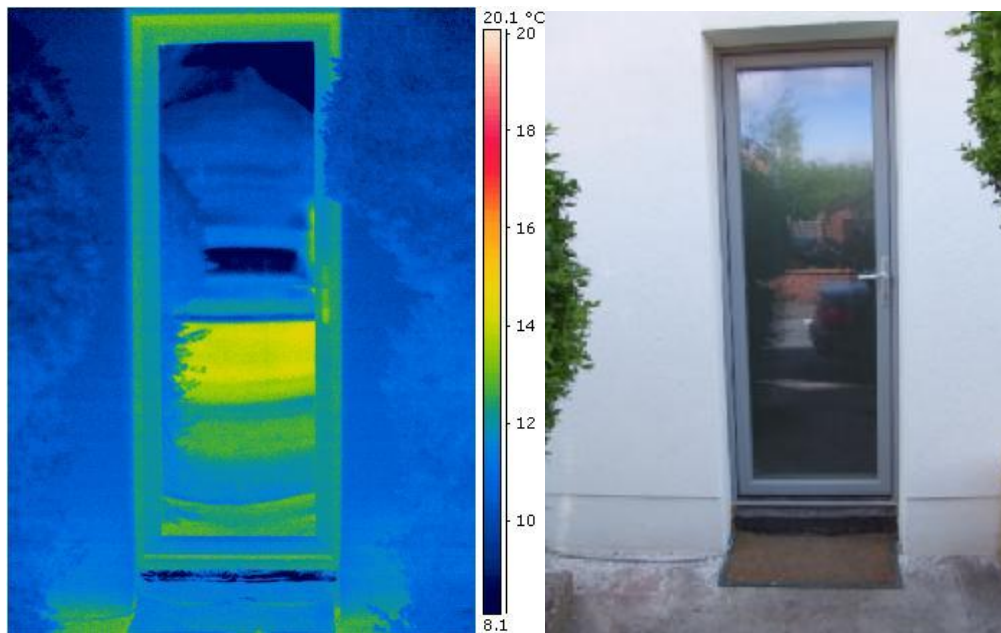
Neighbour's house (right) and Grove Cottage to the left. Without further investigation of the neighbour's house it is hard to say if the warmer surface temperature is due to the wall material, lack of insulation or a combination of both these factors.



Thermogram 5 – Front, street view facing NW up Portfield street

Distance and angle of camera: 20m 45 degrees

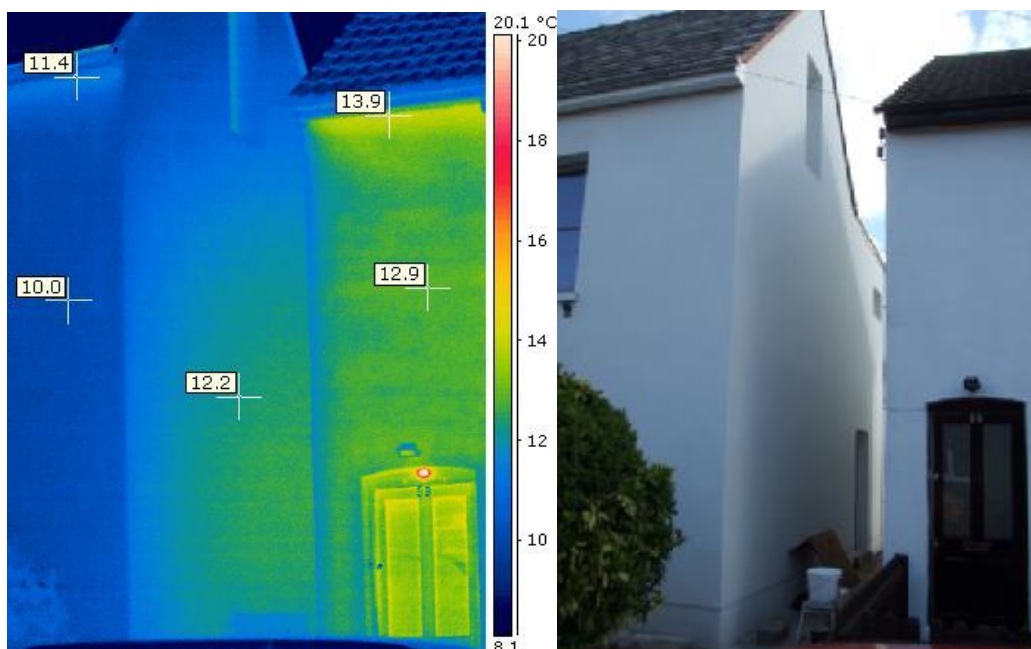
Front wall of the neighbour's house is 3.5 C warmer than Grove Cottage, this is significant and likely due to lack of insulation however this cannot be confirmed by this thermogram alone.



Thermogram 6 – Front door

Distance and angle of camera: 2m 90 degrees

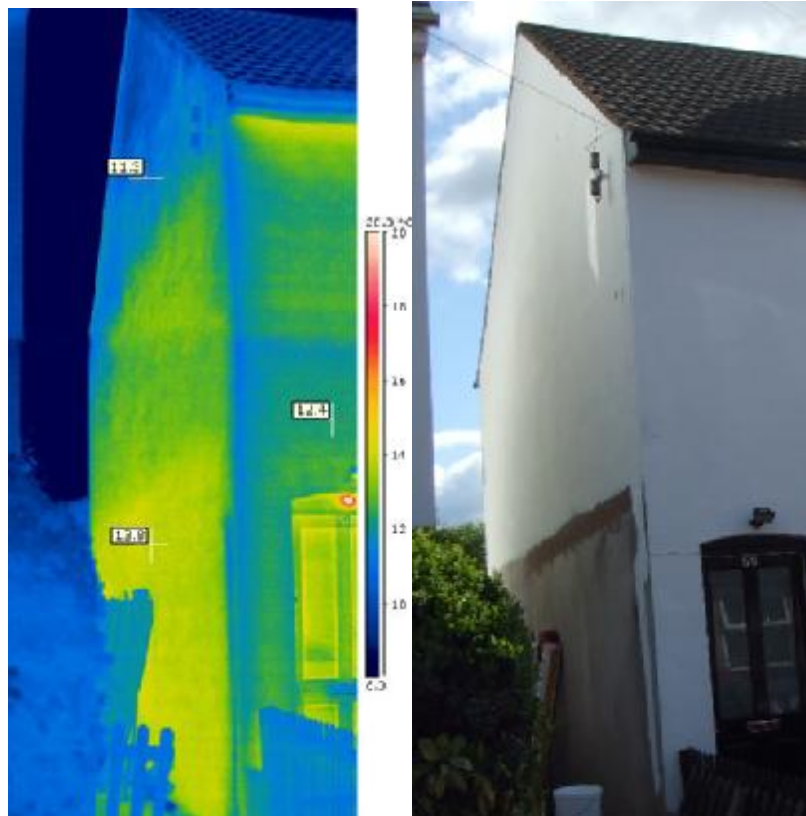
The yellow 'warm' patch in the door is just a reflection of the wall on the other side of the road. The 'warmer' top of the door frame is due to shielding from the sky, and no cause for concern.



Thermogram 7 – Gable end wall of Grove Cottage

Distance and angle of camera: 6m 45 degrees

No anomalies. The gable wall most likely shows as slightly warmer due to shielding from the sky, and infra-red reflection from the neighbour's wall opposite.

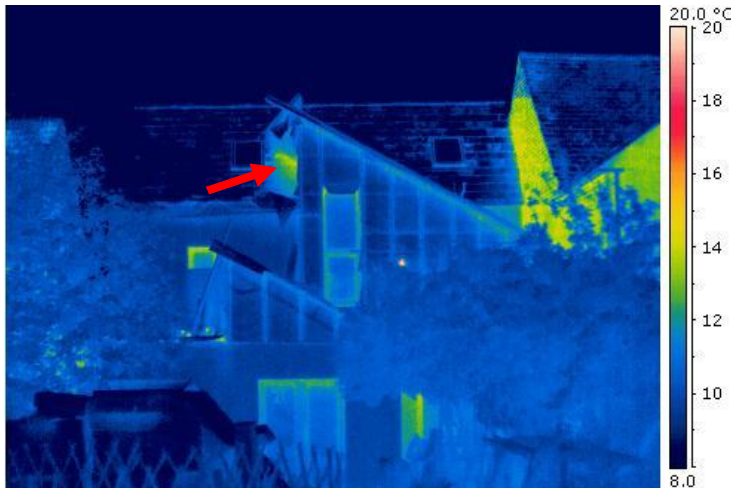


Thermogram 8 – South neighbour, Gable end wall

Distance and angle of camera: 6m 45 degrees

The green/yellow area is 13+ C which at first glance seems to indicate conductive heat losses through the wall. Shielding may also play a part in showing an increased temperature as we see the higher part of the wall appears cooler, being more exposed to the sky. This 'warm' area seems to stop in a uniform line at about loft level, this could indicate an insulated loft, and solid walls.

If this neighbour's wall is solid, and no insulation exists then this would account for the increase in temperature compared to the cooler gable wall of Grove Cottage.

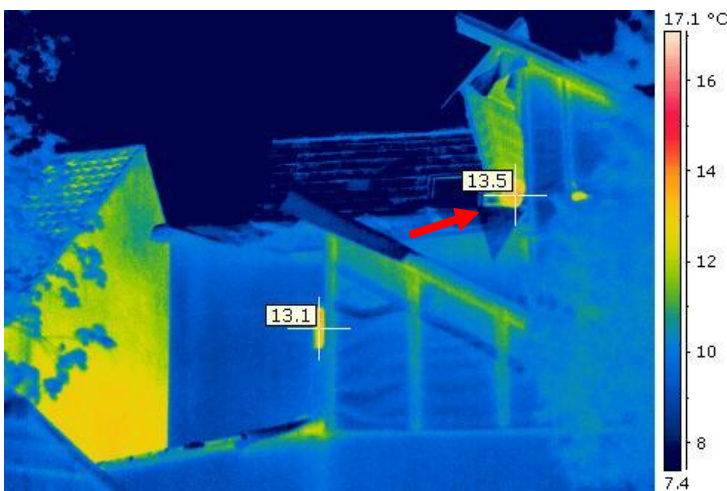


Thermogram 9 – Rear of Grove Cottage

Distance and angle of camera: 25m 90 degrees

No major issues. Worth investigating the elevated temperature indicated by the arrow underneath the eave of the extension roof where it meets the house roof.

fixed window: glass glazing unit was not actually finally sealed to frame during this survey (had been forgotten during works).
Unit was later sealed to frame as specified - during later air pressure test no significant air leakage observed.

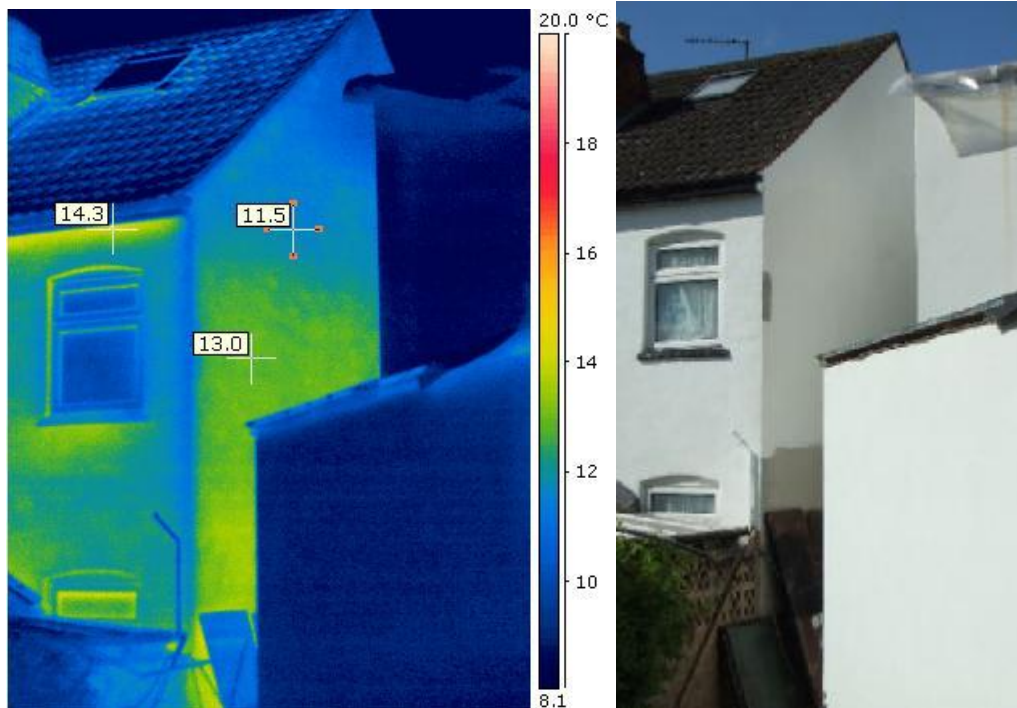


Thermogram 10 – Rear, first floor

Distance and angle of camera: 10m 45 degrees

The hotspot on the roof (13.5 C) should be investigated as no immediate explanation could be found (same anomaly as previous Thermogram 9). The window frame (13.1 C) appeared warmer than expected due to shielding only.

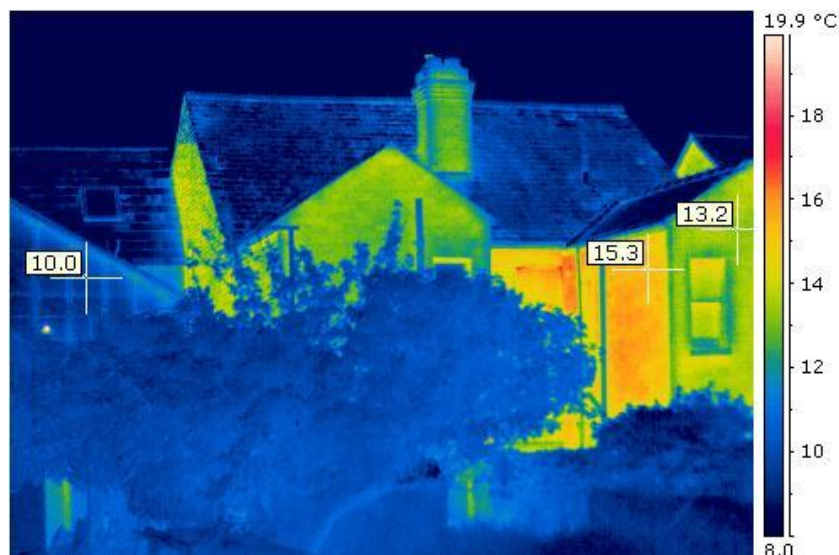
As above.



Thermogram 11 – Rear, South neighbour, gable wall

Distance and angle of camera: 10m 45 degrees

Underneath the roof eave there may be some air leakage and the elevated gable wall temperature can be seen from this angle too. Grove Cottage shows none of these temperature elevations.

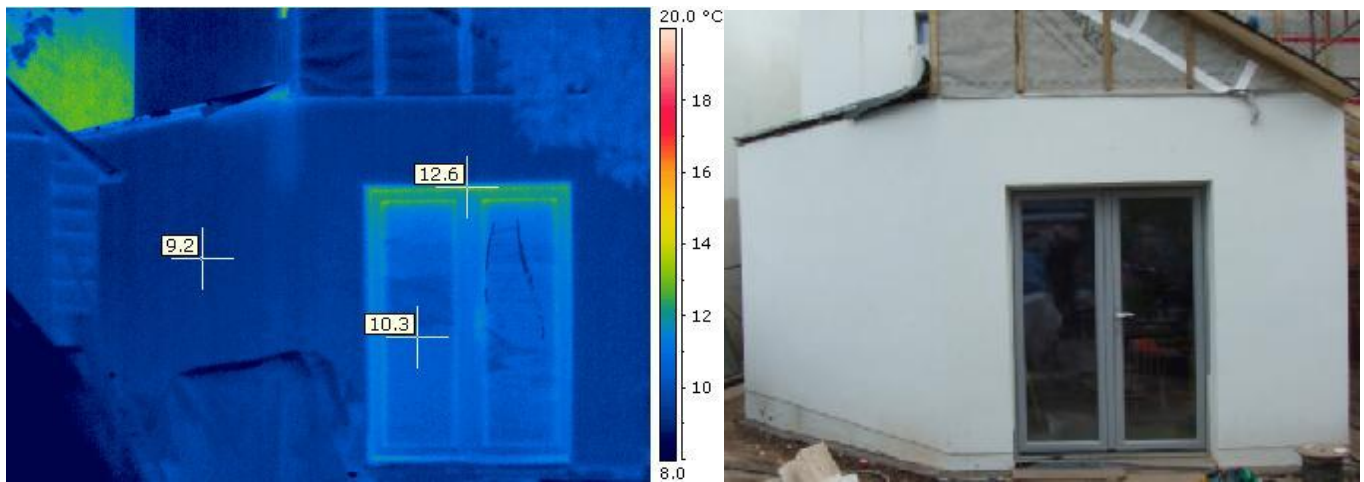


Thermogram 12 – Rear, North neighbour

Distance and angle of camera: 35m 50 degrees

The difference in surface temperature between the three properties is obvious, Grove Cottage is to the far left (10 C)

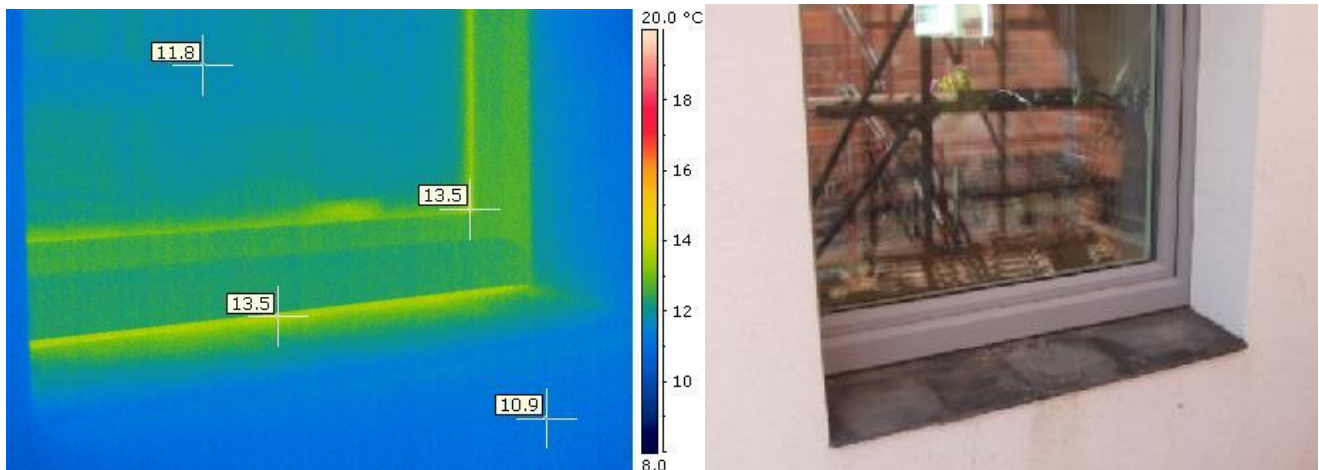
Thermograms



Thermogram 13 – Rear of Grove Cottage, kitchen doors

Distance and angle of camera: 8m 90 degrees

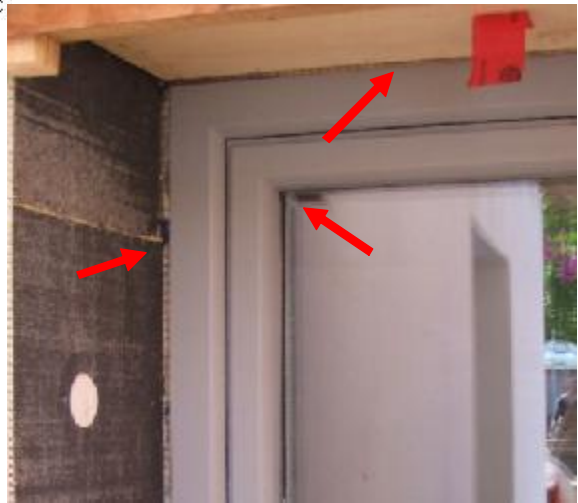
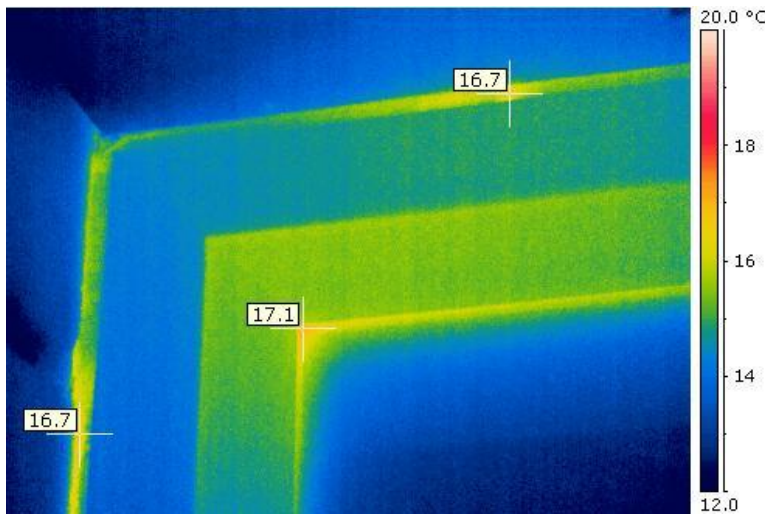
As the doors are recessed, the frame is shielded from the cold night sky and therefore appears warmer. No issues.



Thermogram 14 – Kitchen window, NW wall

Distance and angle of camera: 2m 45 degrees

This shows the 'warmer' parts of the window, however, these are due to shielding from the sky and not considered heat losses.

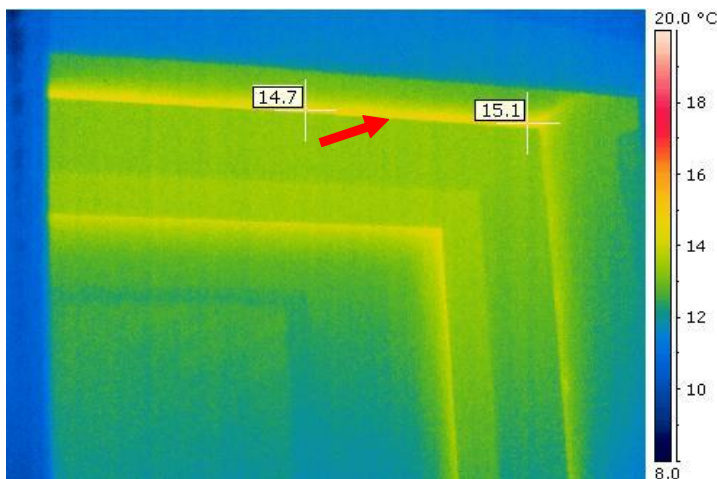


Thermogram 15 – Back door, next to WC

Distance and angle of camera: 2m 45 degrees

The temperatures marked with the crosshairs were excessive and would indicate heat losses around the frame. Investigate.

The final layer of insulation (insulated soffit and jamb detail) has not yet been fitted to windows in the 'Larsen Truss' areas of wall: this will be a 50mm thick foam board overlapping the frame by 40mm. This will be applied to all soffits and jambs of windows in the Larsen Truss walls, cutting out this heat loss.

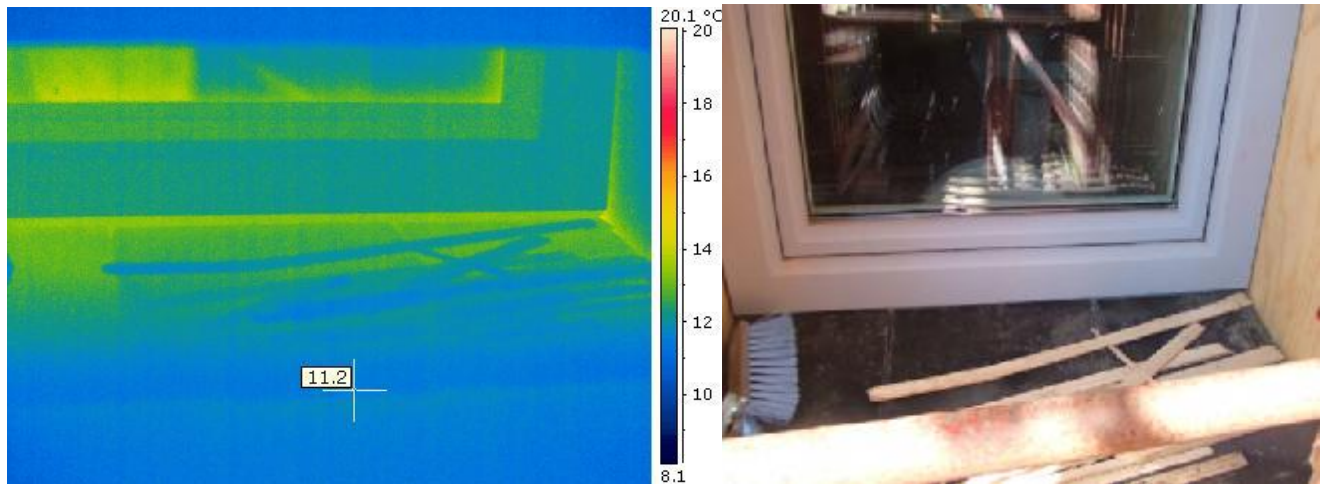


Thermogram 16 – WC window, top half

Distance and angle of camera: 2m 45 degrees

Would be worth checking the seal around this frame.

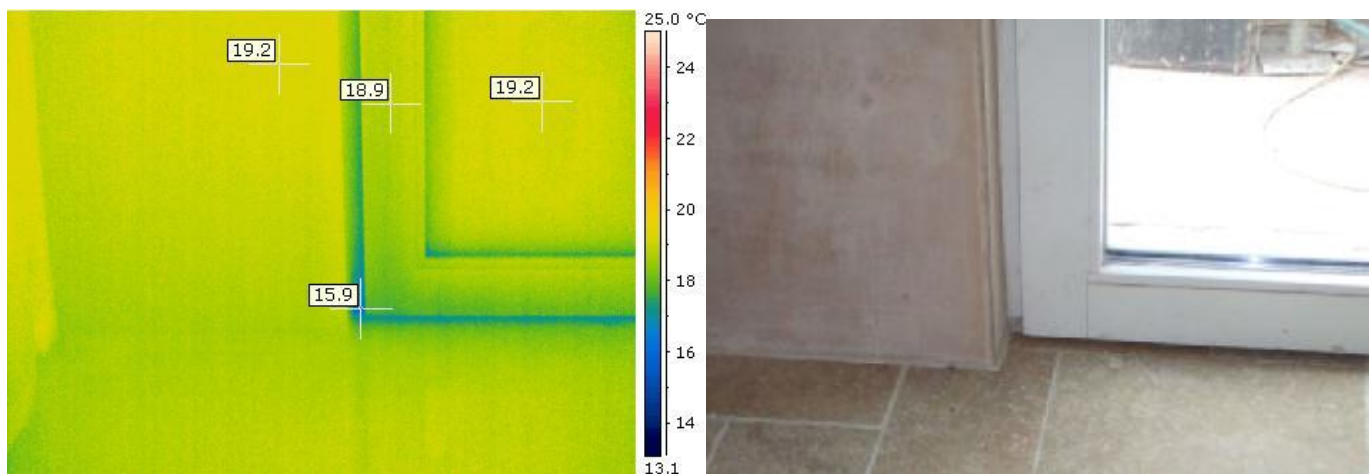
is not leat loss from air leakage - see above.



Thermogram 17 – WC window, lower half

Distance and angle of camera: 2m 45 degrees

No issues here.

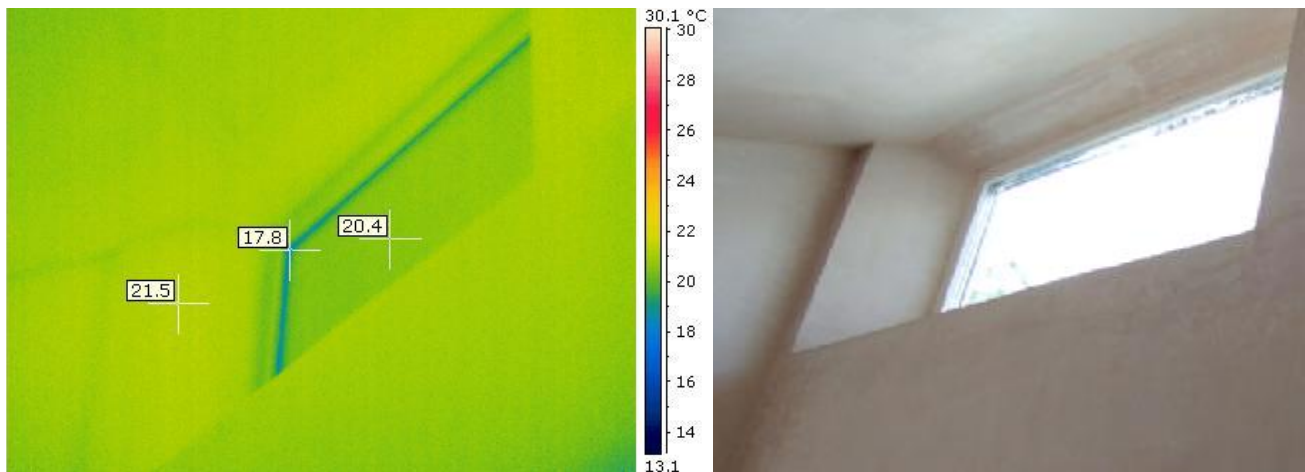


Thermogram 18 – Hallway door, on gable wall

Distance and angle of camera: 2m 90 degrees

The lowest temperature is still above the dew point. No issues.

There are some minor issues with air leakage along threshold seals of all doors. A final adjustment of the doors and windows will be carried out by Internorm UK to ensure best adjustment - this should reduce the air leakage at this point. NB air leakage result was an air permeability of 0.97m³/m²hr and 1.0 ac/hr (see www.simmondsmills.com for full air pressure test report)



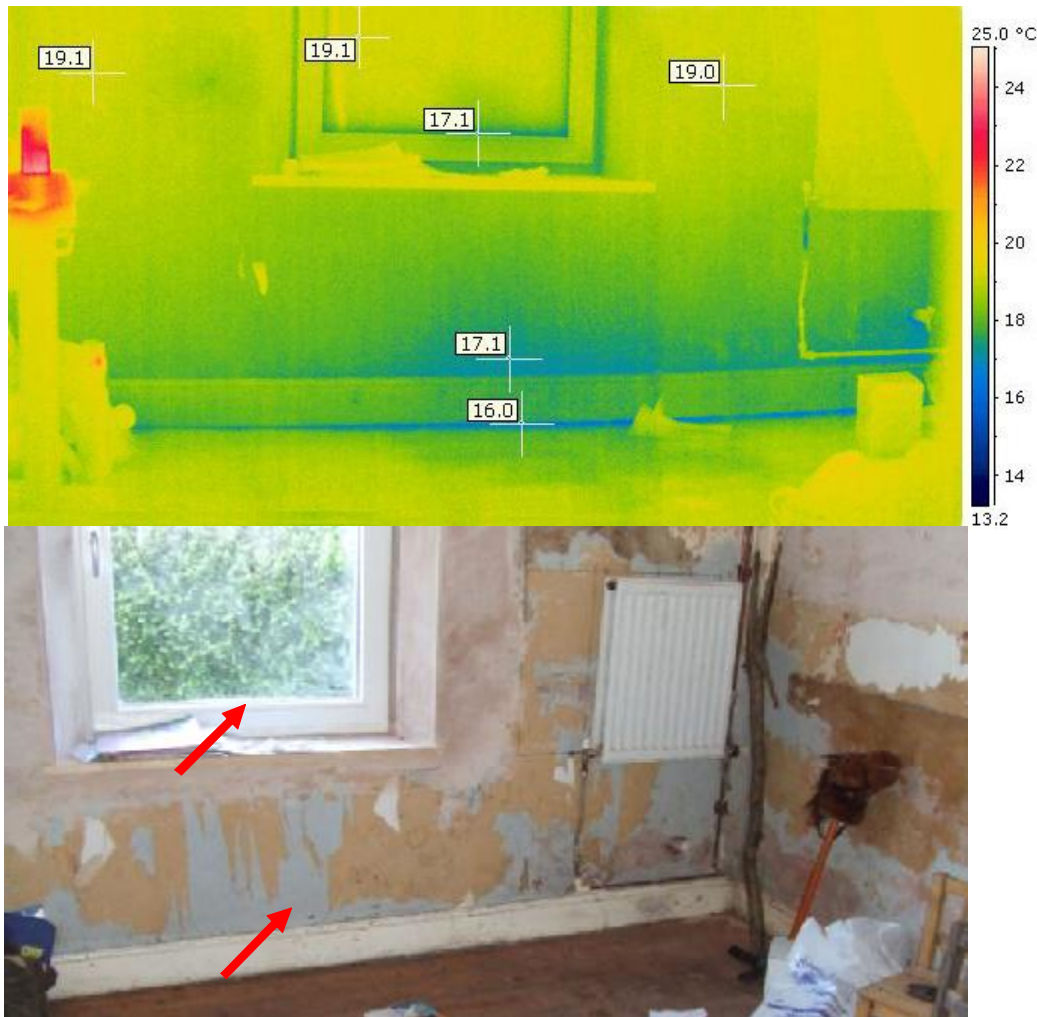
Thermogram 19 – Kitchen ceiling window, closest the double doors

Distance and angle of camera: 2m 90 degrees

A wider temperature span has been used for this image as the ceiling area of the kitchen was warmer due to rising heat. The window is cooler where the glass meets the frame, however at these temperatures this would not generally be considered a defect.

This image should be discussed with the thermographer to clarify.

Internorm Uk are to check glass to frame seals on fixed lights to check instalation.



Thermogram 20 – Play room, SW wall, front wall of house

Distance and angle of camera: 2m 60 degrees

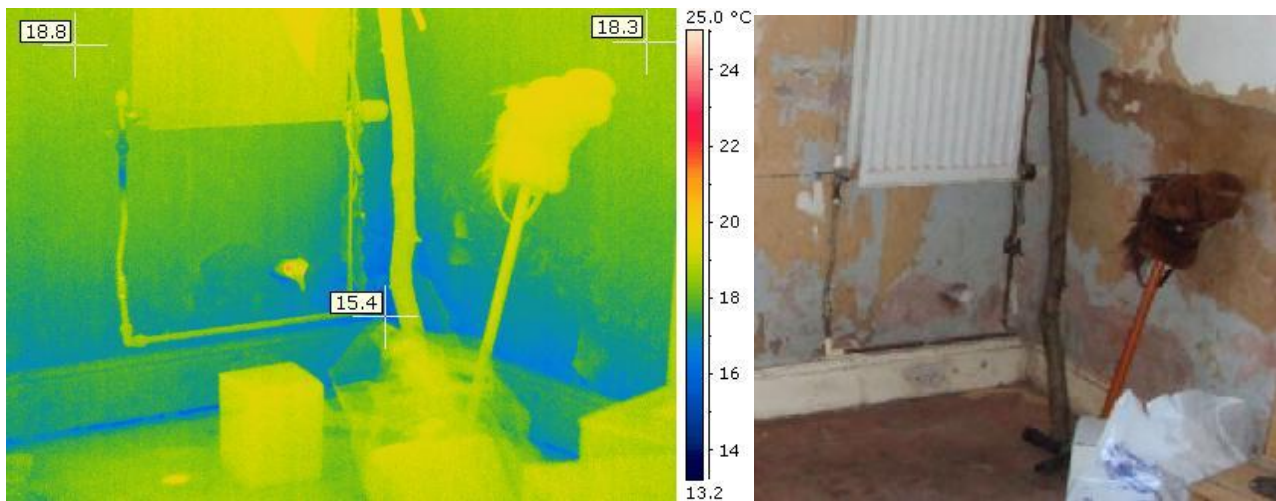
The wall and window **above** window frame level are at 19C, however this drops to 16C where indicated by the blue colouring and crosshairs. Andy Simmonds said this was acceptable and due to a vent on the outside of the wall. There was also a cold patch on the window (17.1 C crosshair) which could not be explained, although it is the same temperature as the window in the previous Thermogram 19.

Discuss this image with the thermographer to clarify.

Corner of room: This area of wall 25 mm cavity i.e. north gable 'party' wall adjacent to neighbours house has not yet been filled with PU foam as elsewhere. When this is complete both the minor airleakage at this point (via the cavity) and also the insulation value should improve, raising surface temperatures at this semi-exposed corner.

Area of wall below window: a fully recessed telescopic air vent (ventilating basement below) in effect has 'removed' a volume of wall insulation at this point, which gives rise to this cooler area.

See project presentation.



Thermogram 21 – Play room, SW wall, corner

Distance and angle of camera: 2m 45 degrees

The corner of the same play room wall as previous Thermogram 20. This corner is noticeably cooler but although no obvious explanation for this can be seen from the images, Andy Simmonds suggests this is still above the dew point and no cause for concern.

As above.