Example Thermal Survey

GET SNAGGED

Overview

Conditions:

The survey was performed in the morning, the externals were imaged at dawn before sunlight hit the sides of the building. The external temperature was 6 degrees. There was some wind.

The property was heated to at least 21 degrees for several hours before commencement of the survey. All the windows and trickle vents were closed.

Interpretation of thermal images:

It is important to remember that thermal imaging is one of many tools required for building defect pathology. Evidence must be viewed with a holistic lens which considers all the multiple factors which affect houses. Additional evidence to support the thermal imaging should be sought where possible.

Just because an image may show something is cold or hot this is not necessarily indicative of a defect. It is unavoidable that heat loss through some building elements is going to be greater than the heat loss through other elements. Ordinary heat loss from thermal bridges, such as window lintels and floor junctions, are accounted for when the building energy performance is calculated (the y-value calculation).

The apparent temperature scale shown on photos is relative, something which is 20 degrees may be red in one image and blue in a different image depending on the temperature of surrounding elements and depending on what the image is intending to demonstrate.

Thermal imaging does not let you see inside walls, only the apparent temperature of the surface.

Elements with low emissivity (reflective in the infrared) such as windows and glazed tiles cannot provide reliable heat information

The main findings include:

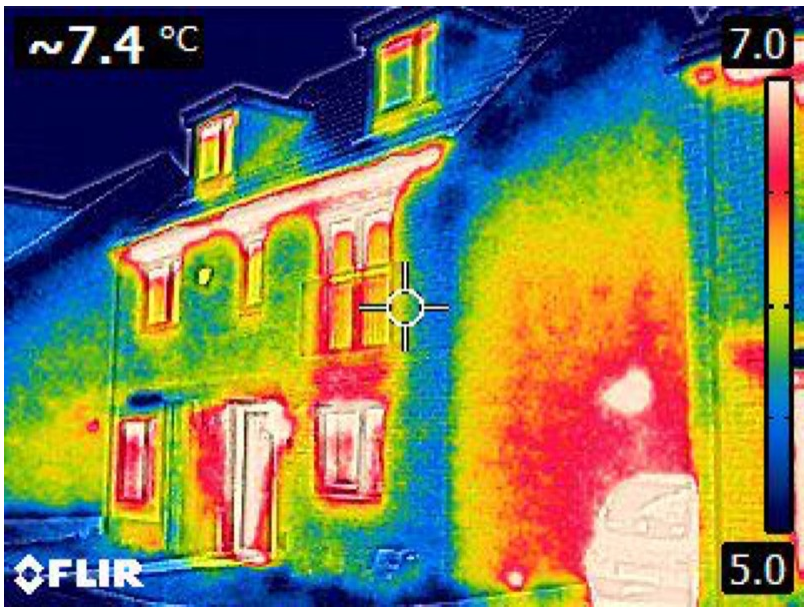
Insulation is poor or missing in places above the shower room (top floor bathroom) dormer.

Insulation is missing or poor in the eaves level void behind the shower room and in other places at the rear eaves void.

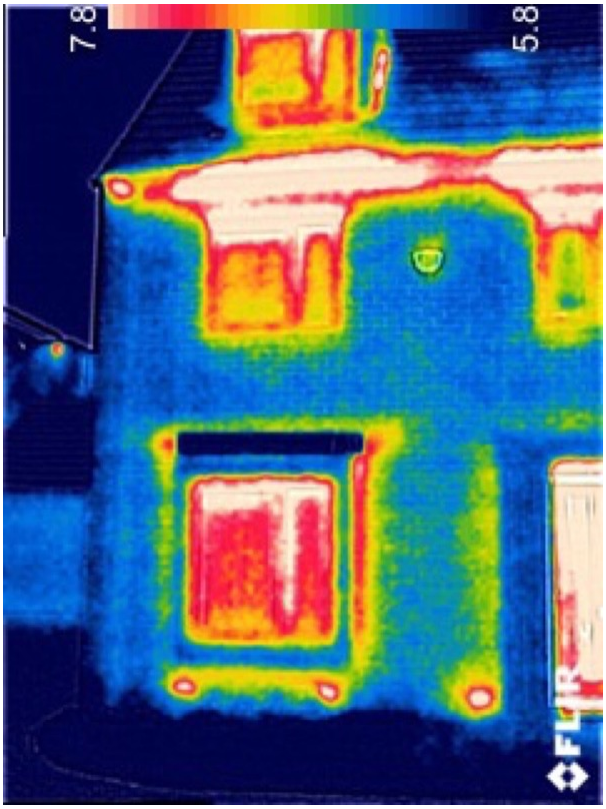
Blown fibre wall insulation is missing between the Study and Master Bedroom Windows.

Insulation needs adjusting in the loft.

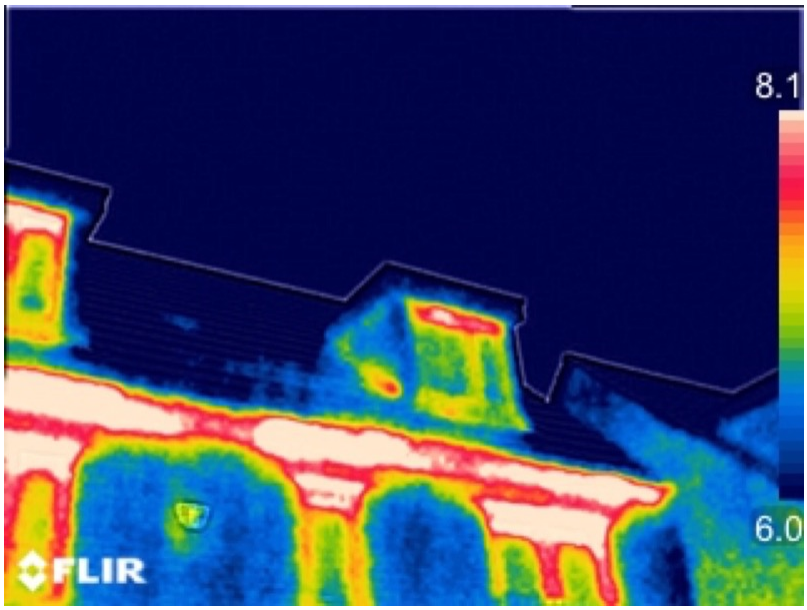
There is significant heat loss behind the shower void in the en suite.



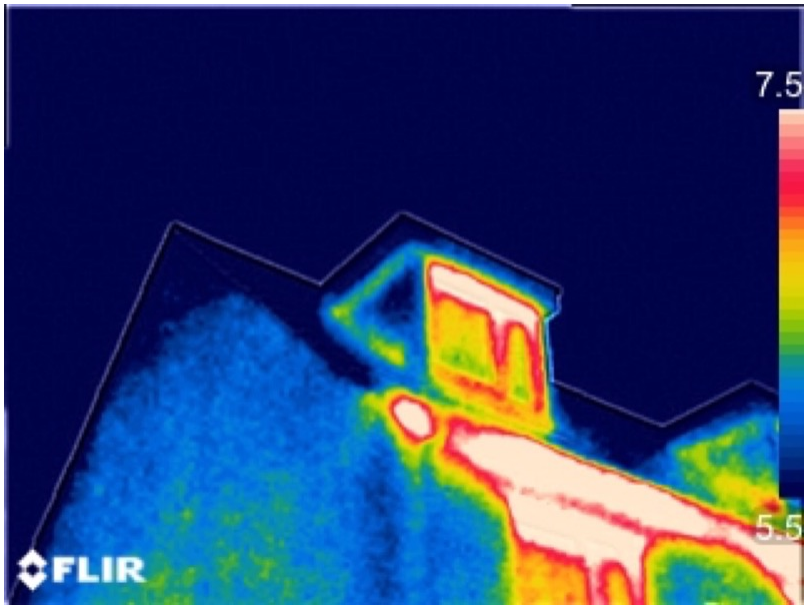
Exterior front



Exterior front



Exterior front

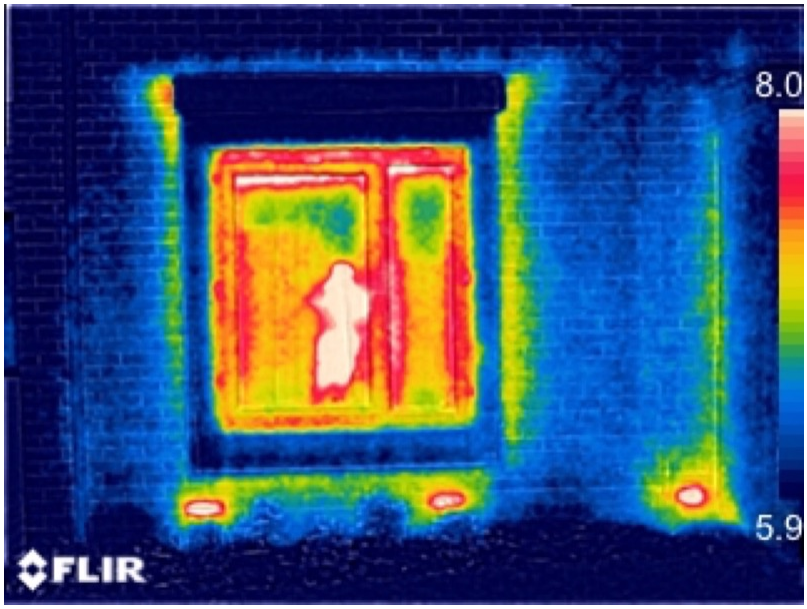


Exterior front

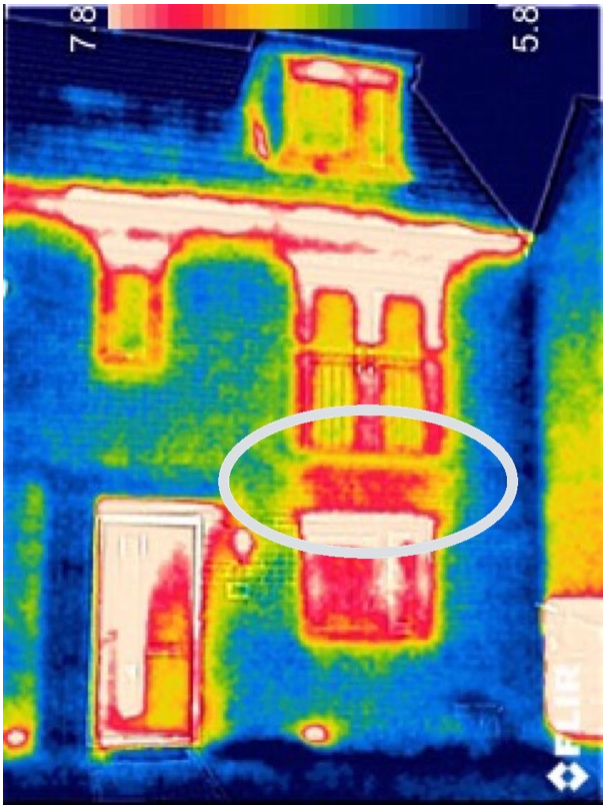
Exterior front

Heat from the windows is warming the soffit.

This could suggest the insulation is missing above the windows. Given the insulation fill is poor in other areas, recommend the insulation above the upper windows is investigated

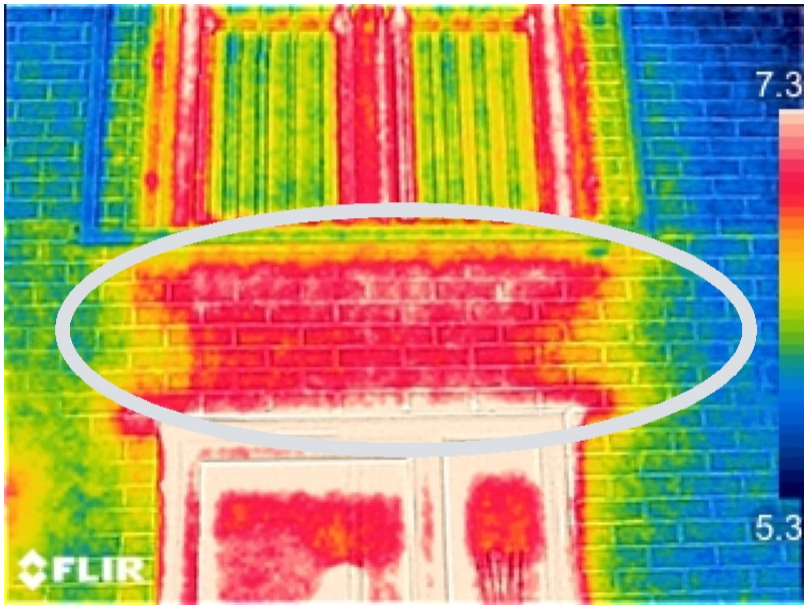


Exterior front



Exterior front

Anomaly



Exterior front

There is a large heat anomaly on the wall between the Study and Master Bedroom window.

Exterior front

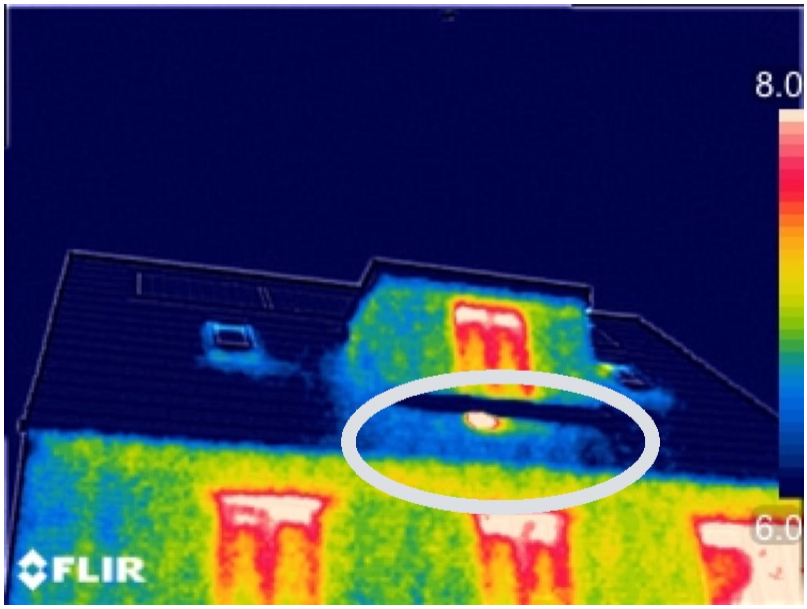
Borescope check above the Study window showed insulation was missing.

Since the insulation is missing here it is recommended the developer does a full investigation in to the quality of the blown fibre insulation installation

Exterior front

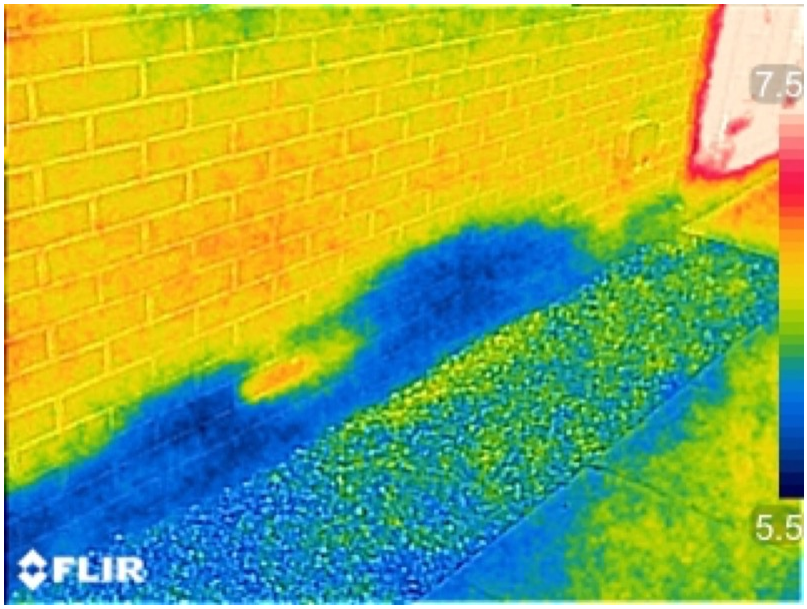
As above, detail. Insulation is missing above the study window, below the Juliet balcony

Exterior back



Exterior back

Excess heat loss below the rear dormer. Corresponds with the internal photo which suggest the loft insulation is poor is missing here

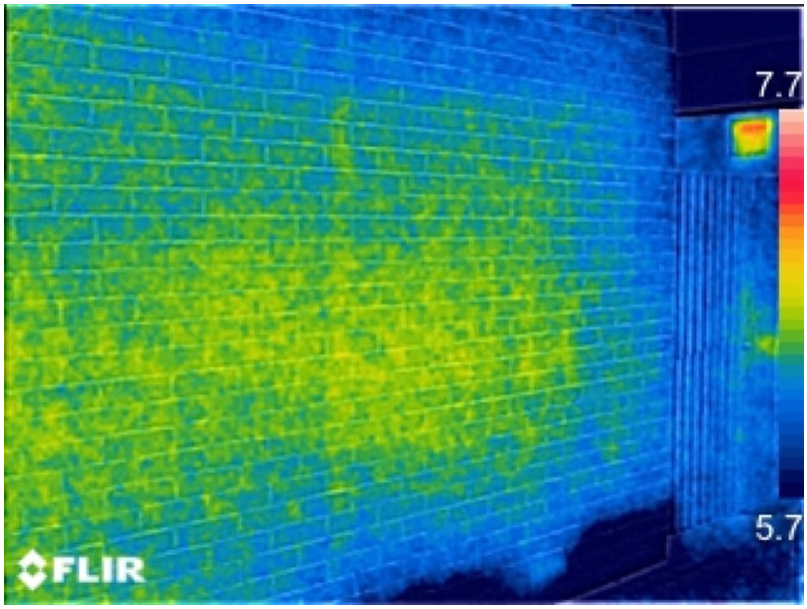


Exterior back

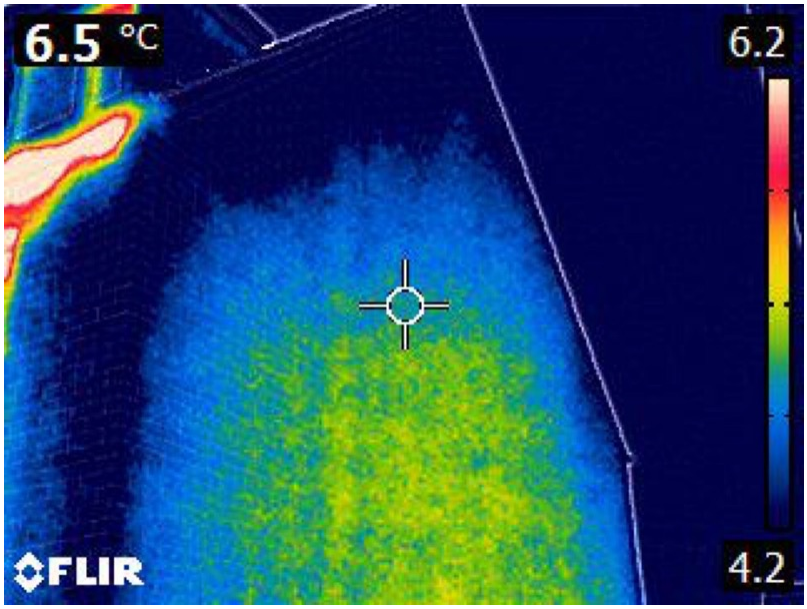
Moisture on the rear elevation goes above the damp proof membrane, could suggest the damp proof membrane is not continuous here or compromised

Exterior back

Insulation fill sufficient at test location



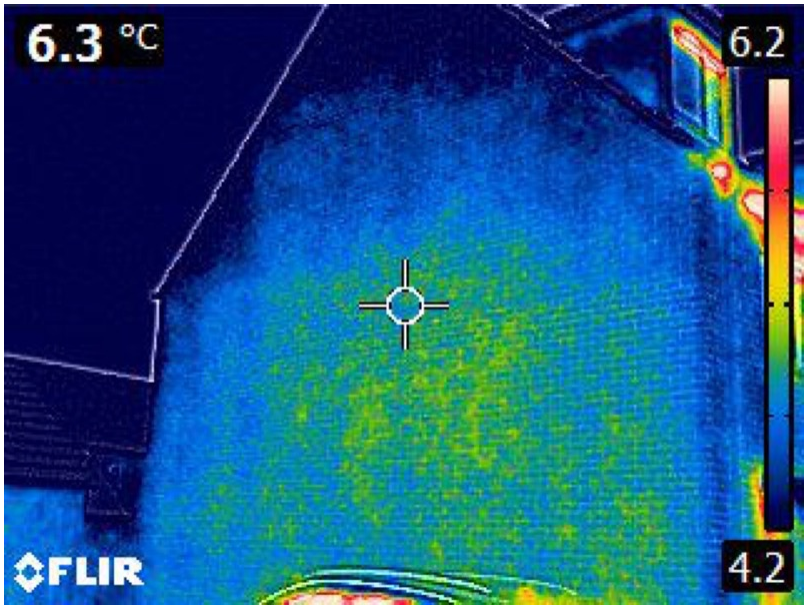
Exterior right



Exterior right

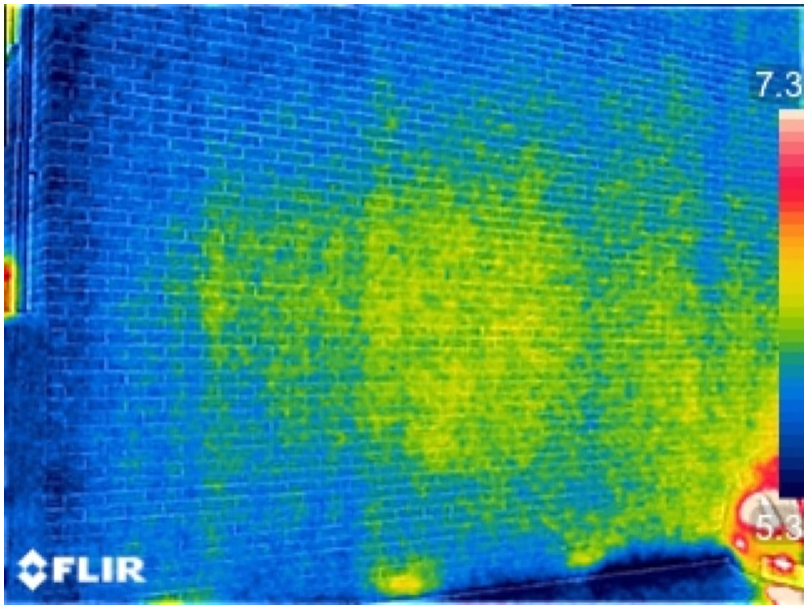
Exterior right

Insulation fill sufficient at the test location



Exterior left

Exterior left



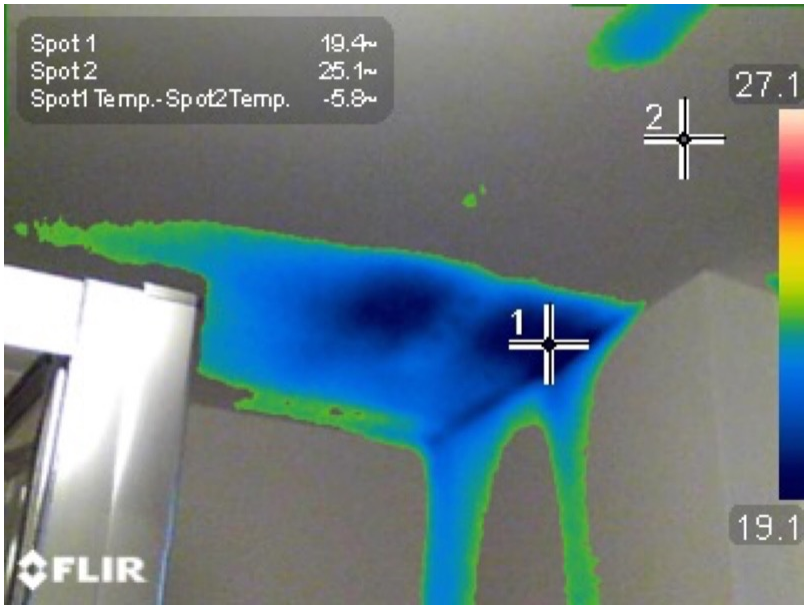
Exterior left

Exterior left

Poor Insulation fill at the rear left corner

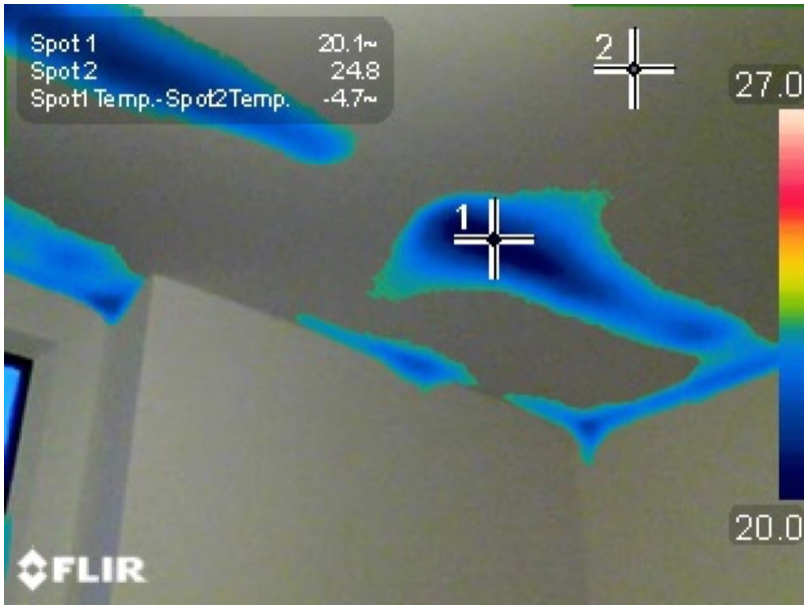
Exterior left

As above, detail. Air pockets in the insulation



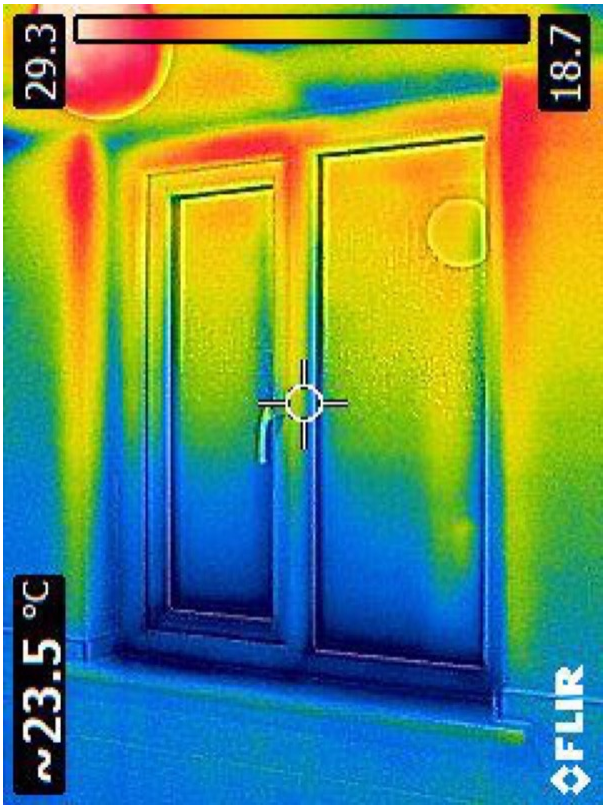
Top floor bathroom

There are significant heat loss anomalies on the ceiling in the shower room. Some patches are 6 degrees colder than others. There is likely missing insulation or air circulation below the insulation in these areas



Top floor bathroom

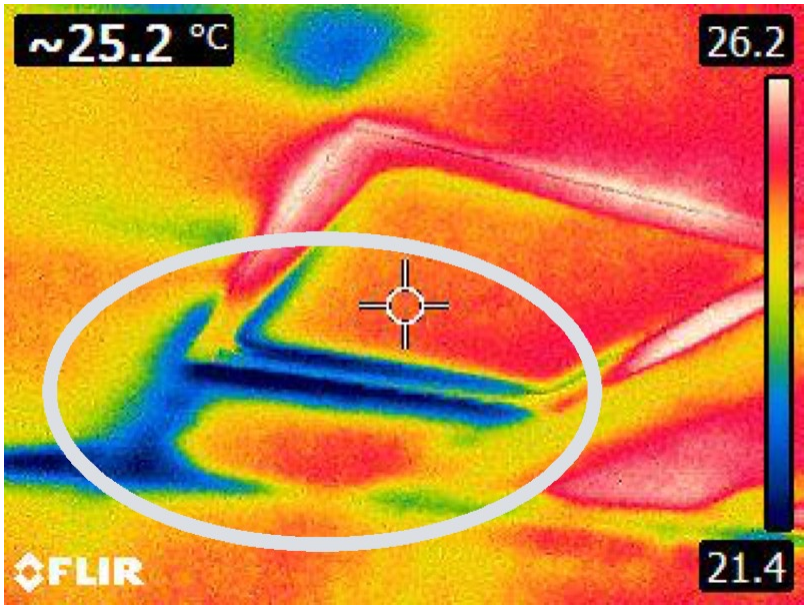
As above example



Top floor bathroom

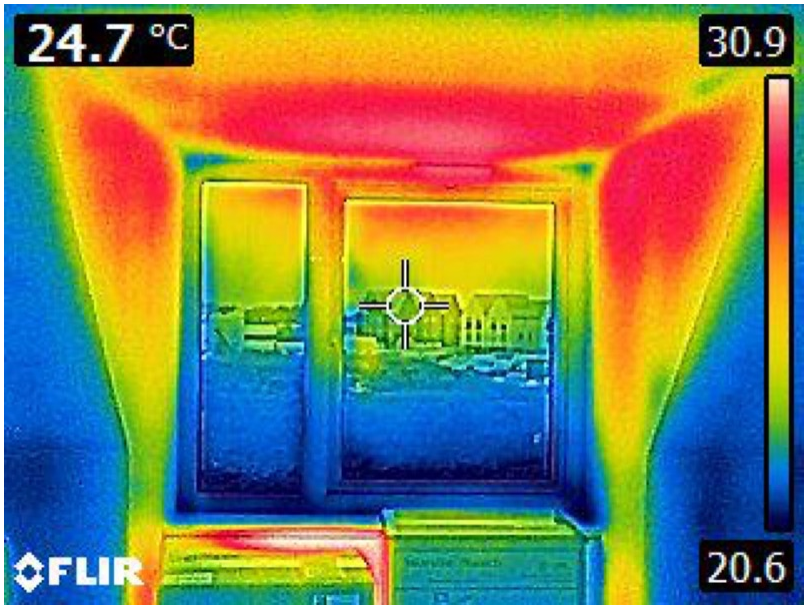
Normal window heat loss pattern.

Low emissivity coating confirmed.



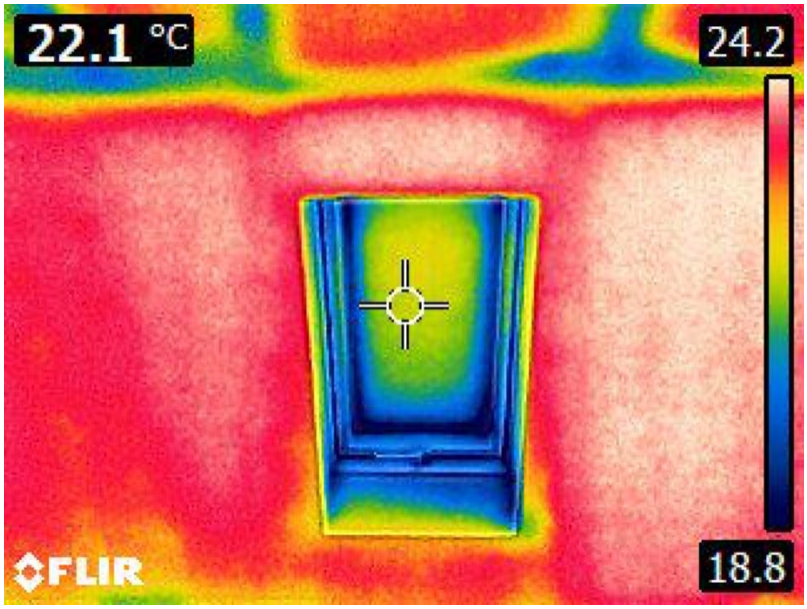
Bedroom 5

Excess heat loss around the loft hatch. The loft hatch needs replacing with a fire rated loft hatch



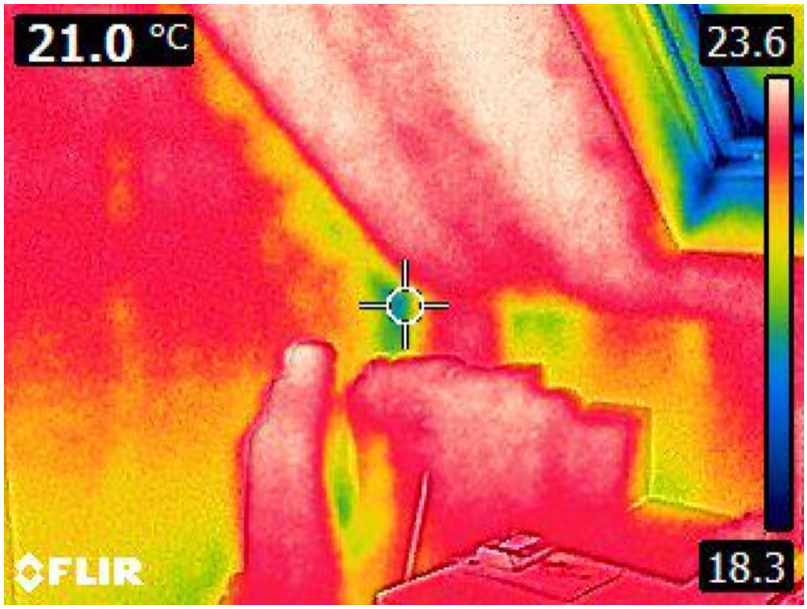
Bedroom 5

Normal window heat loss pattern. Low emissivity coating confirmed.

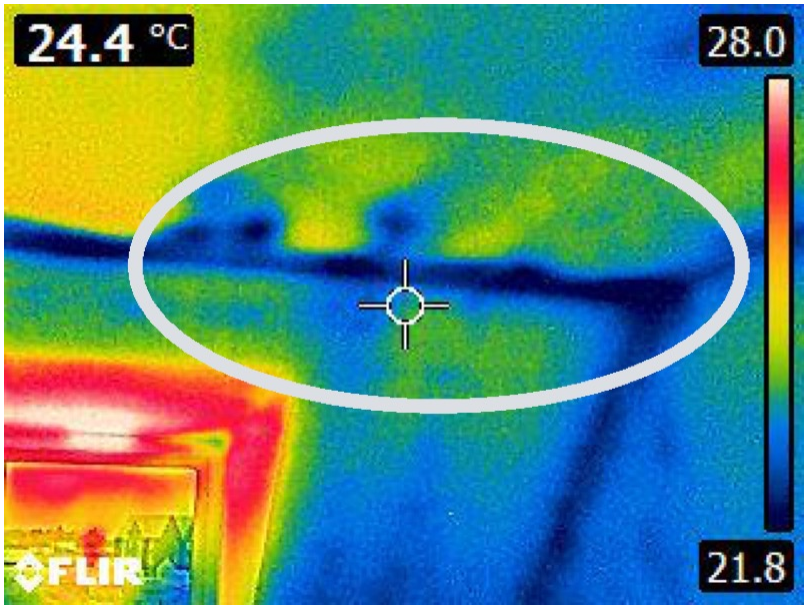


Bedroom 5

Normal window heat loss pattern.
Low emissivity coating confirmed.

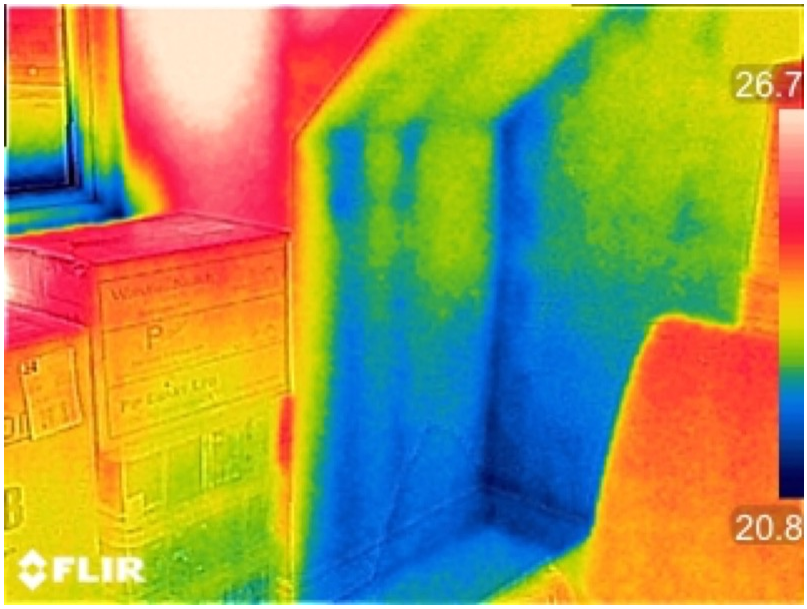


Bedroom 5



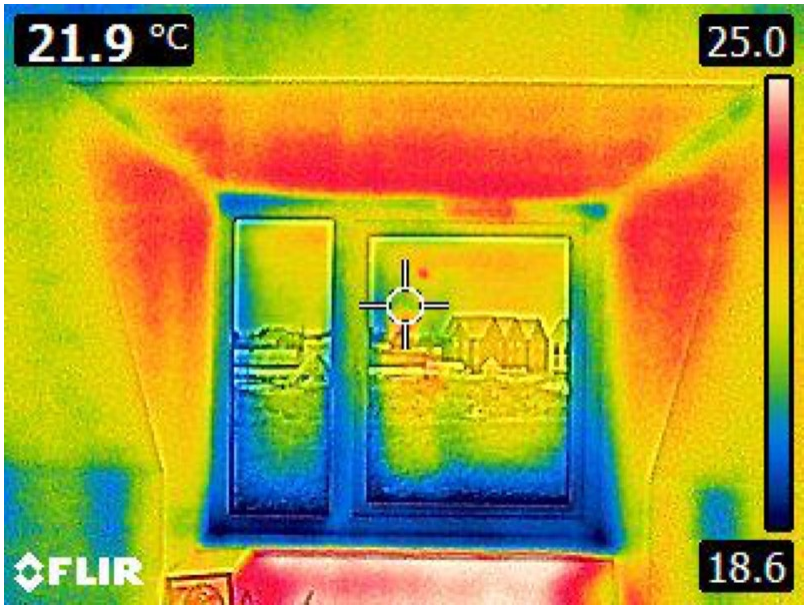
Bedroom 5

Adjust the loft insulation above the velux side of the bedroom 5 ceiling



Bedroom 5

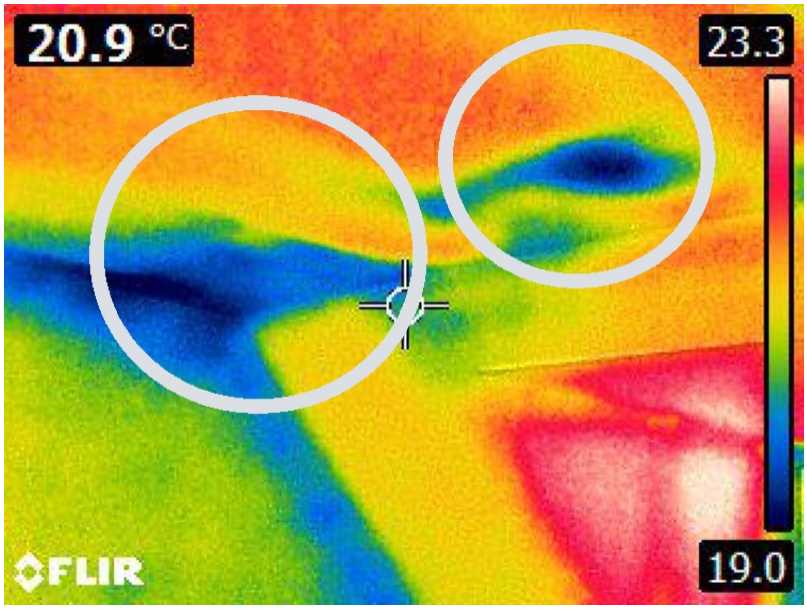
Stud wall appears to be backed with insulation



Bedroom 4

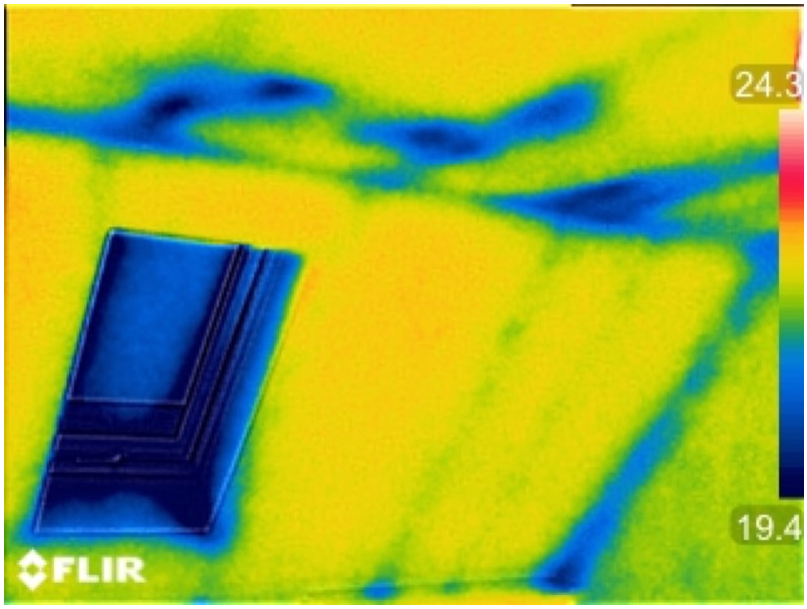
Normal window heat loss pattern.
Low emissivity coating confirmed.

Bedroom 4



Bedroom 4

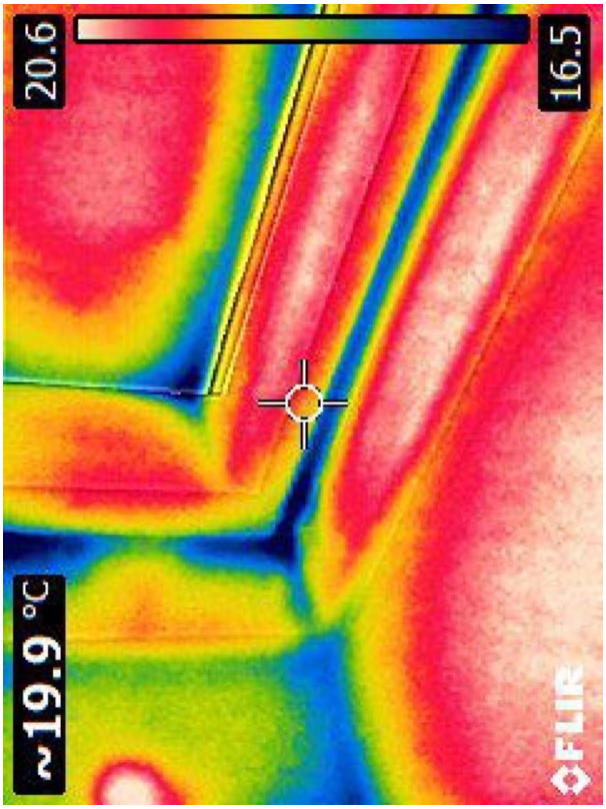
Improve the insulation installation above bedroom 4



Bedroom 4

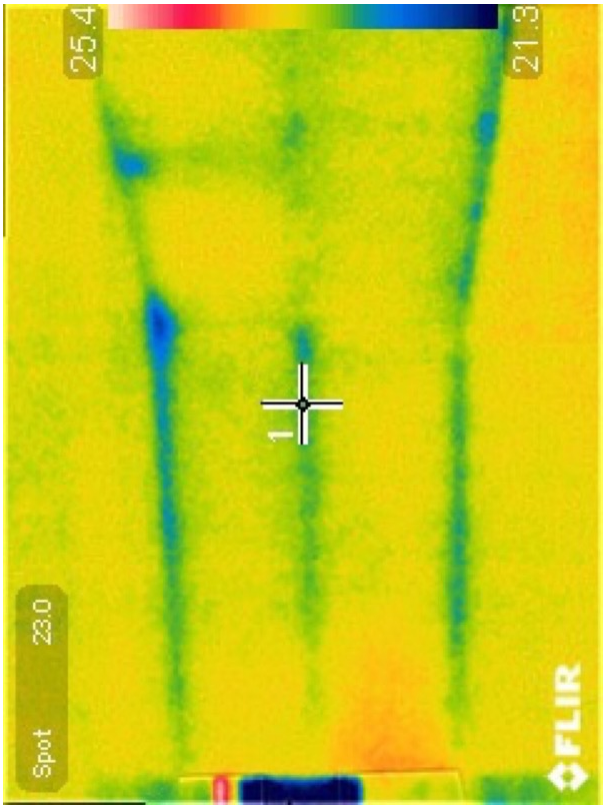
As above

Bedroom 4

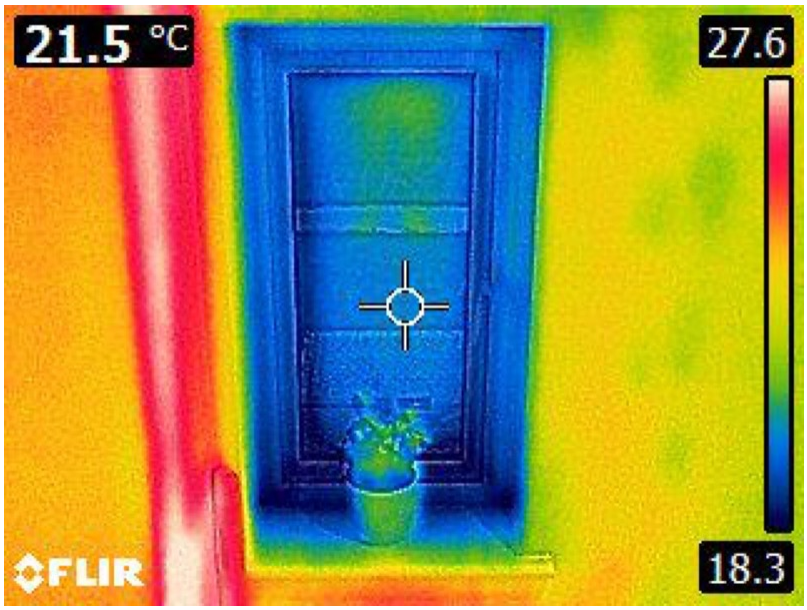


Bedroom 4

The velux position needs adjusting to have a better seal on the right side

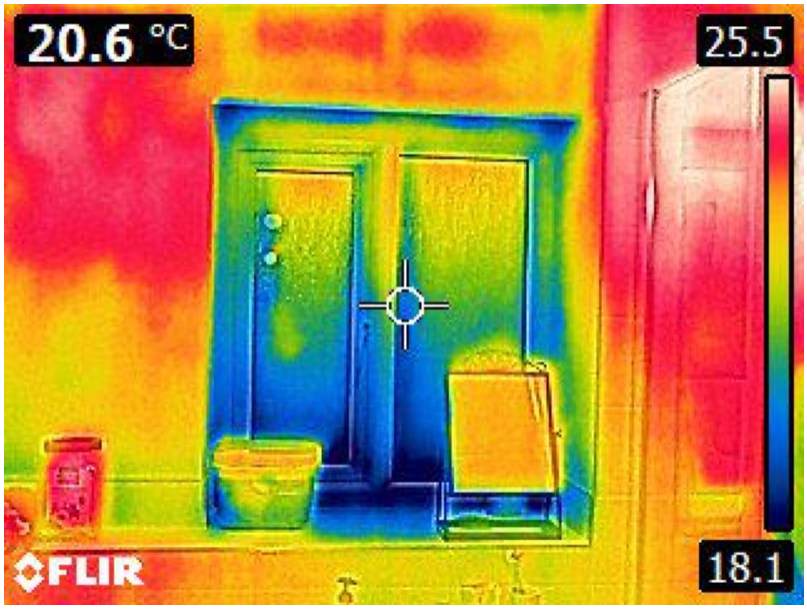


Landing



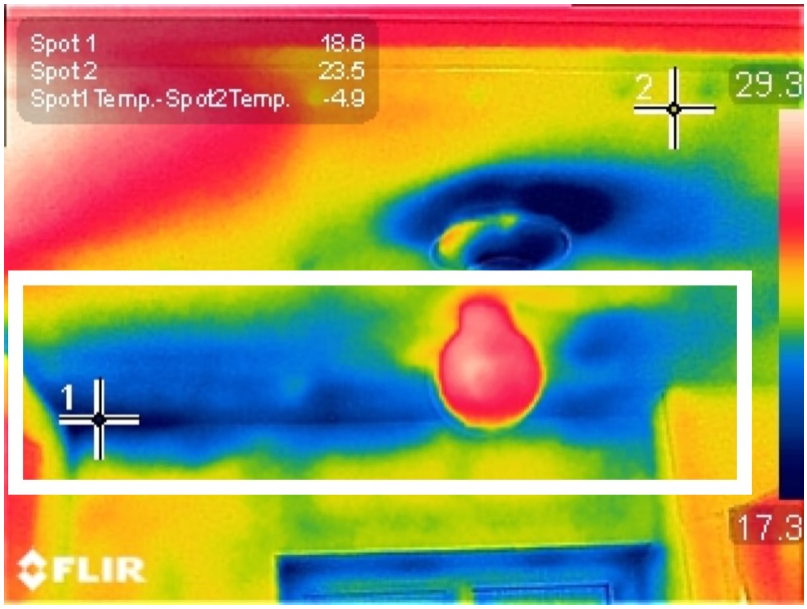
Landing

Normal window heat loss pattern.
Low emissivity coating confirmed.



Bathroom

Normal window heat loss pattern. Low emissivity coating confirmed.

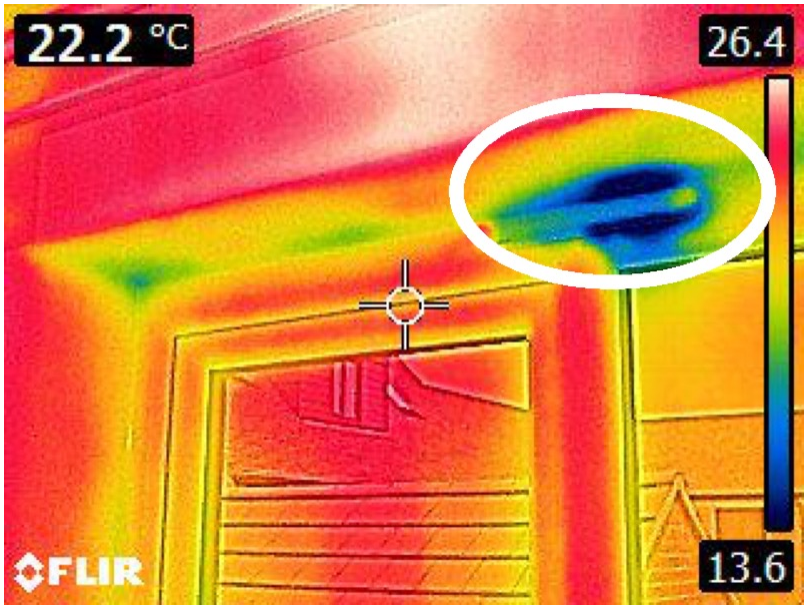


Bathroom

The insulation appears to be poor above the bathroom in the area near the eaves. Area is inaccessible as it is behind the shower room dormer

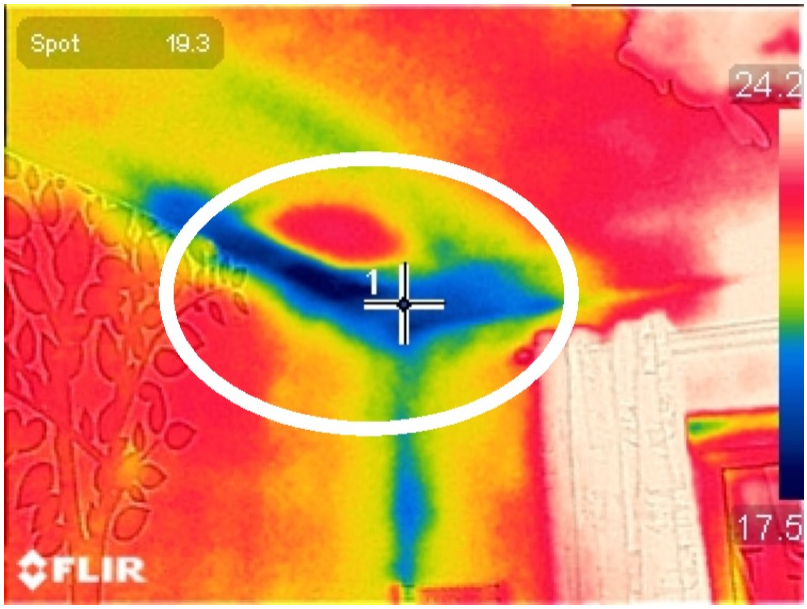
Bedroom 2

Normal window heat loss pattern.
Low emissivity coating confirmed.



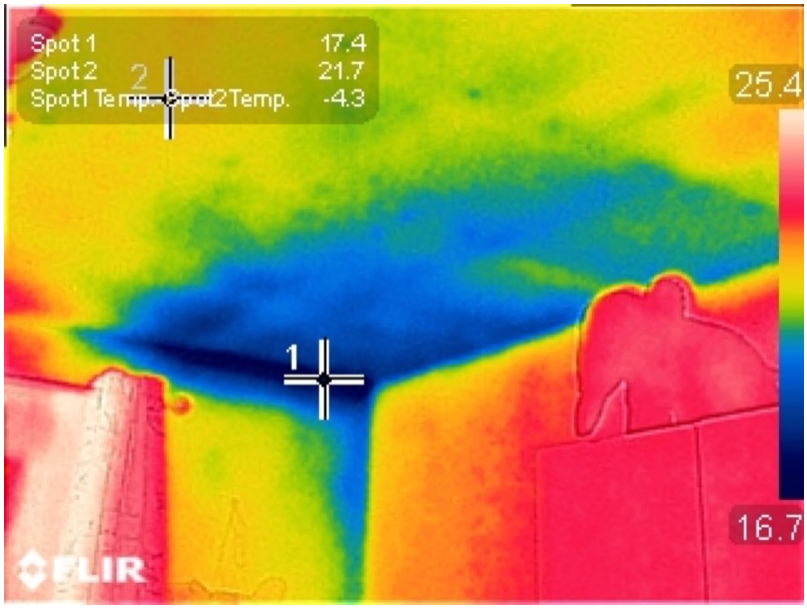
Bedroom 2

Adjust the trickle vent in bedroom 2



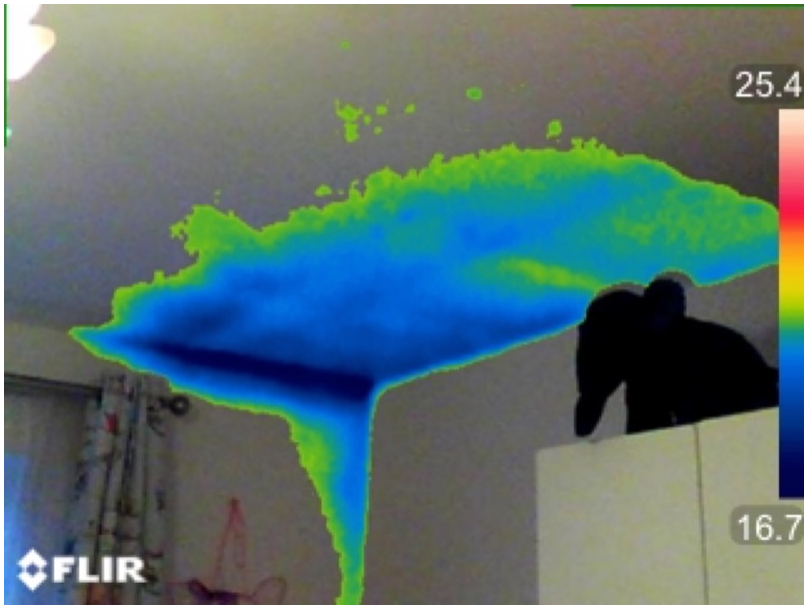
Bedroom 2

Excess heat loss above bedroom 2 suggests poor insulation behind the stud wall in the corner left of the velux in bedroom 5



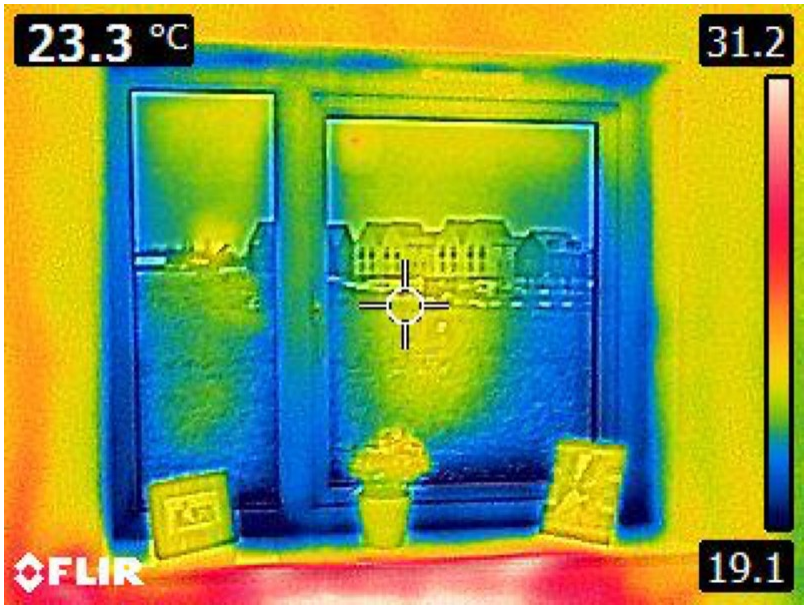
Bedroom 2

The ceiling above bedroom 2 supports that the insulation is missing or very poor at the eaves void behind the shower room dormer



Bedroom 2

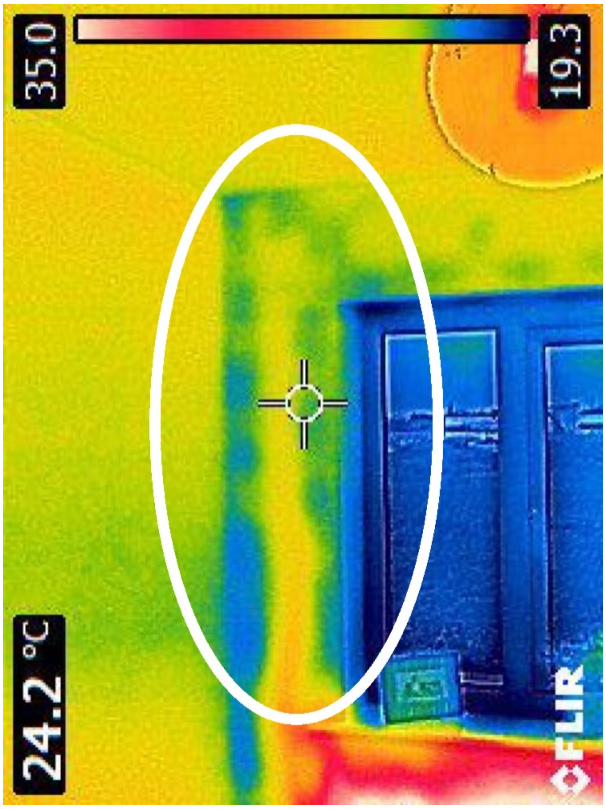
As above, location



Bedroom 3

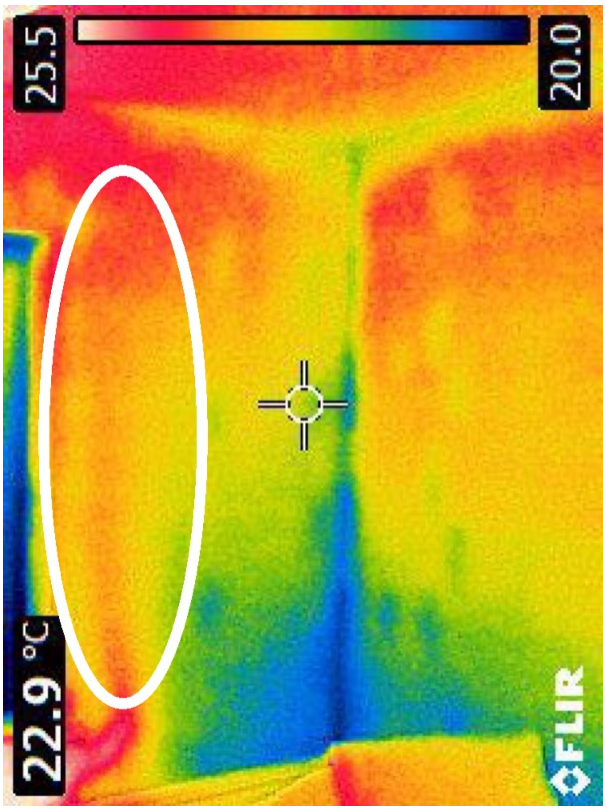
Normal window heat loss pattern.

Low emissivity coating confirmed.



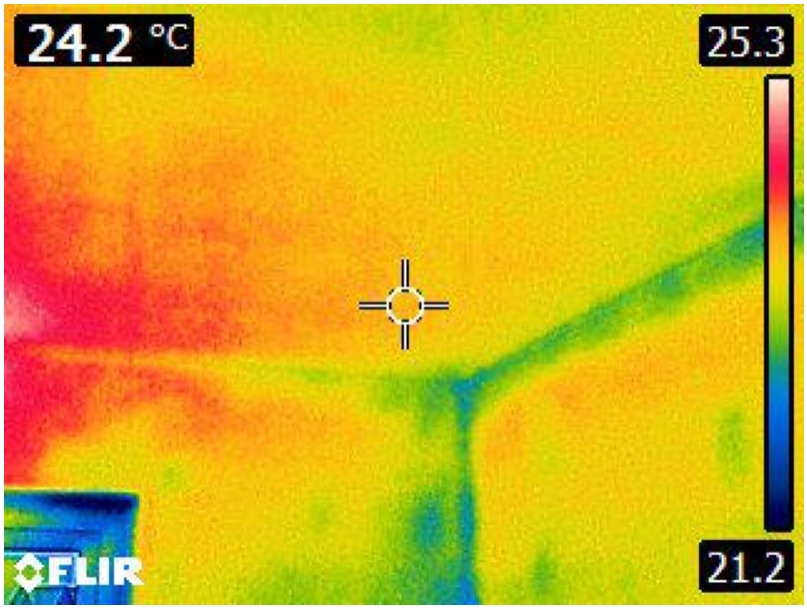
Bedroom 3

The external perimeter of the plasterboard does not appear to be well sealed in bedroom 3, heat is escaping up behind the plasterboard in to the eaves void

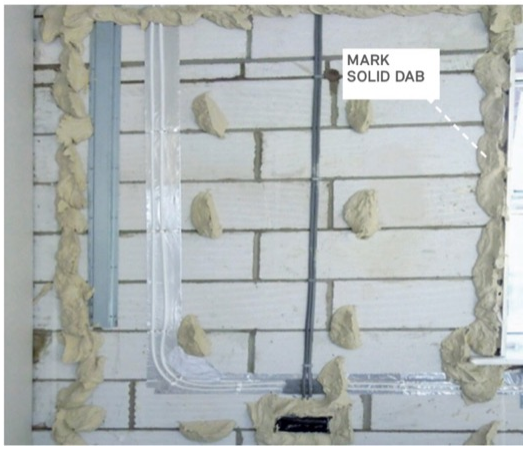


Bedroom 3

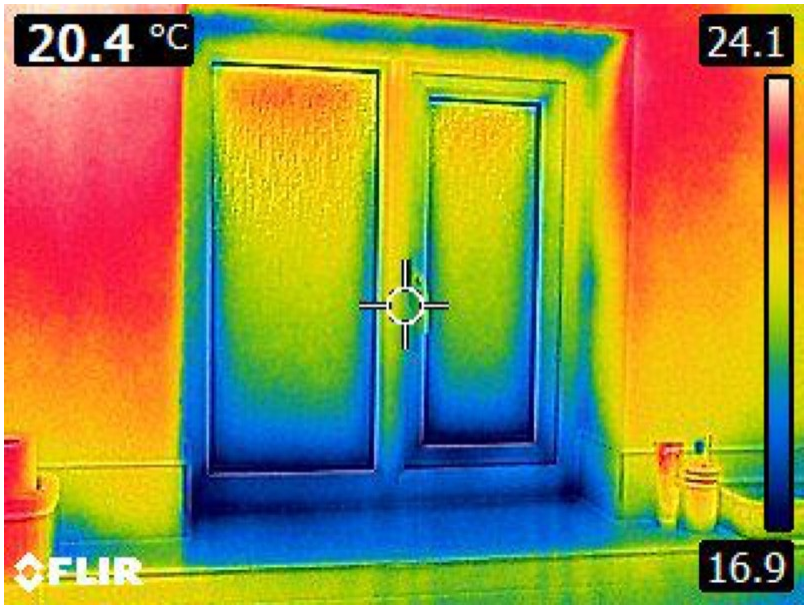
As above



Bedroom 3

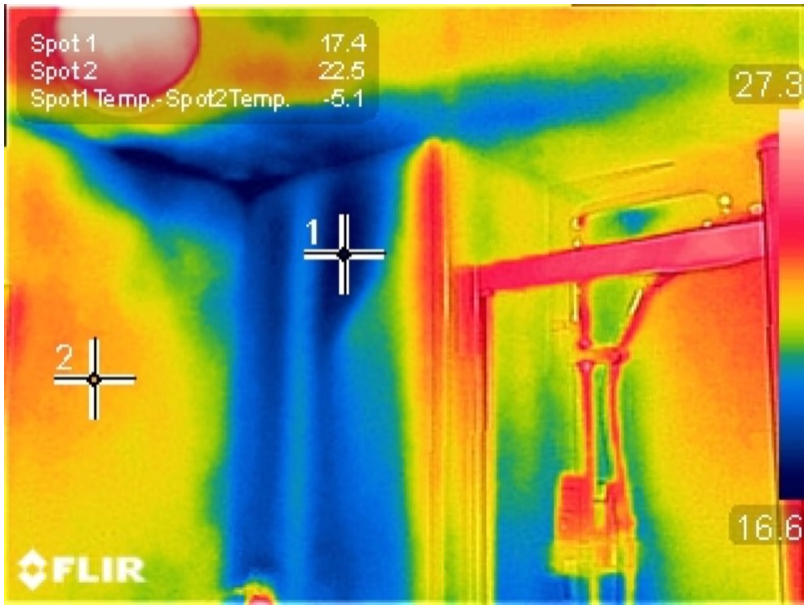


Builders Handbook Guidance Regarding Plasterboard Sealing



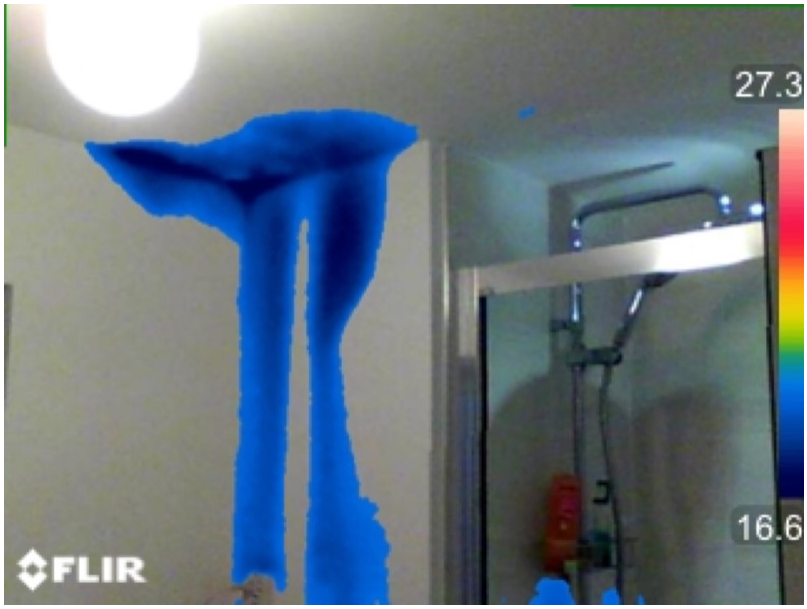
En suite

Normal window heat loss pattern.
Low emissivity coating confirmed.



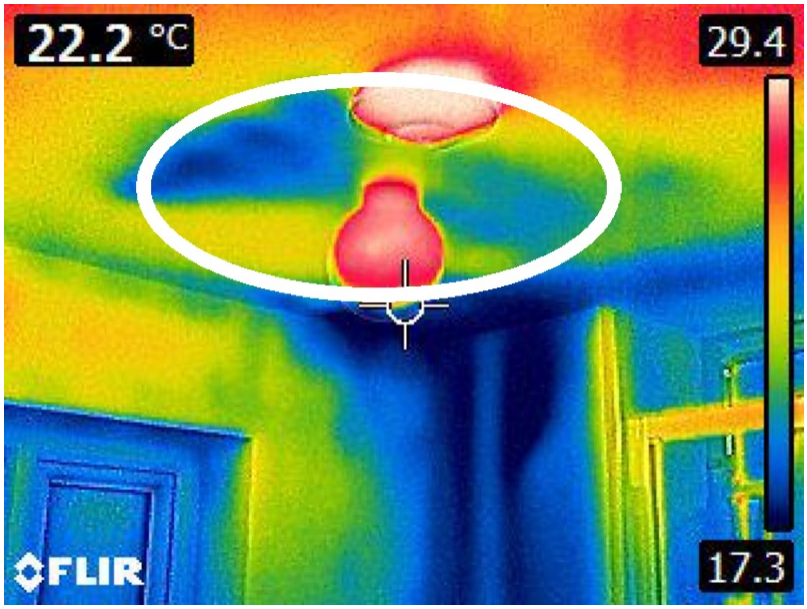
En suite

Insulation appears to be missing from the void behind the shower causing significant heat loss, insulation is missing above. The gap in the thermal envelope will be heat out of the room via the thermal stack effect



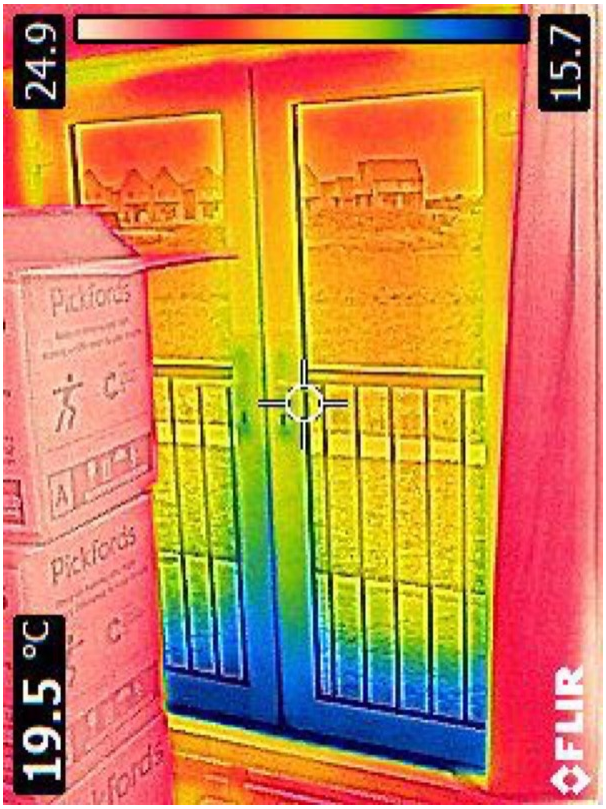
En suite

As above location



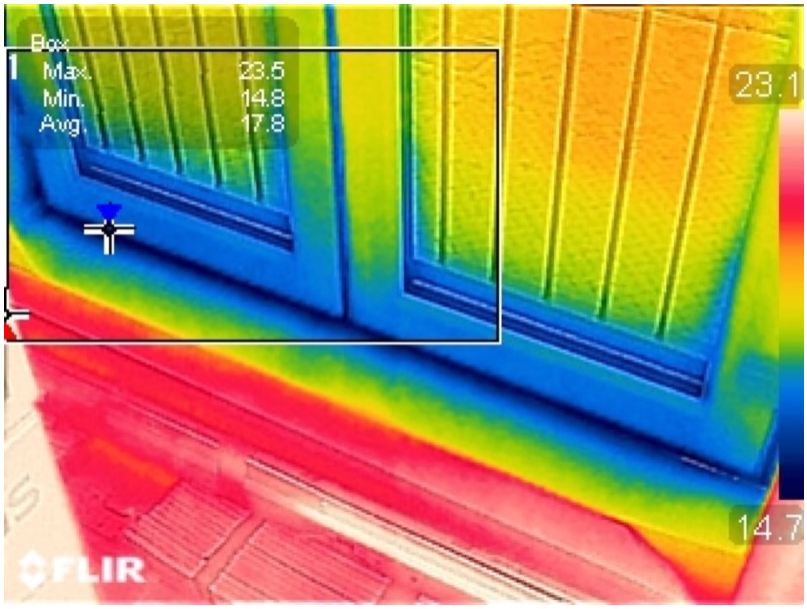
En suite

Insulation missing in places in the eaves void above the en suite



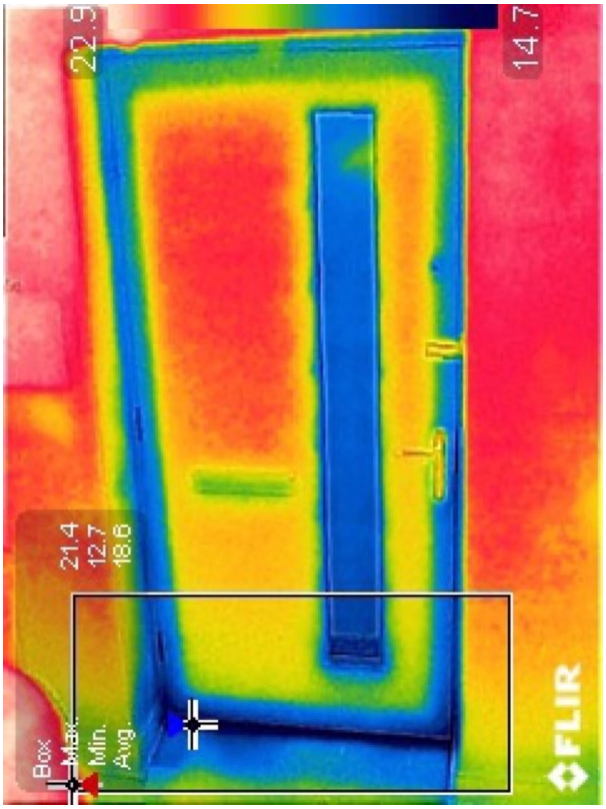
Master Bedroom

Slightly elevated heat loss below the Juliet balcony doors



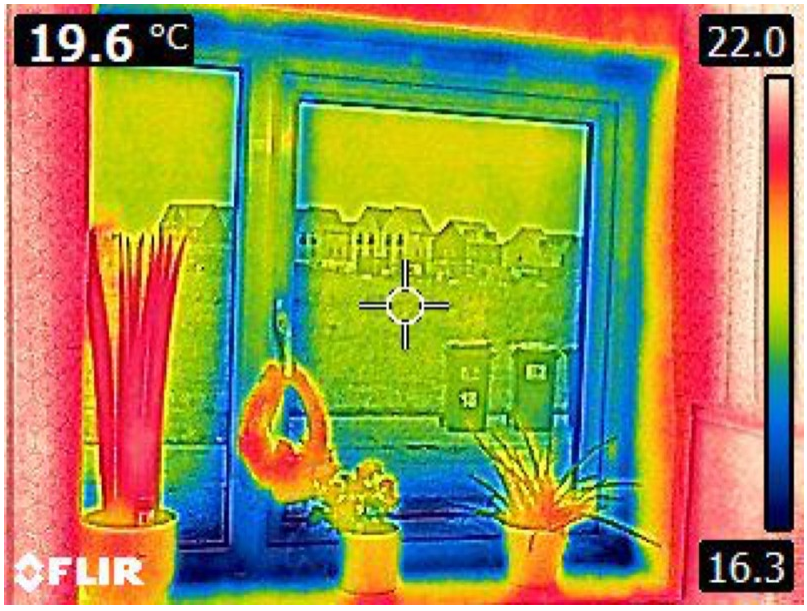
Master Bedroom

As above, detail



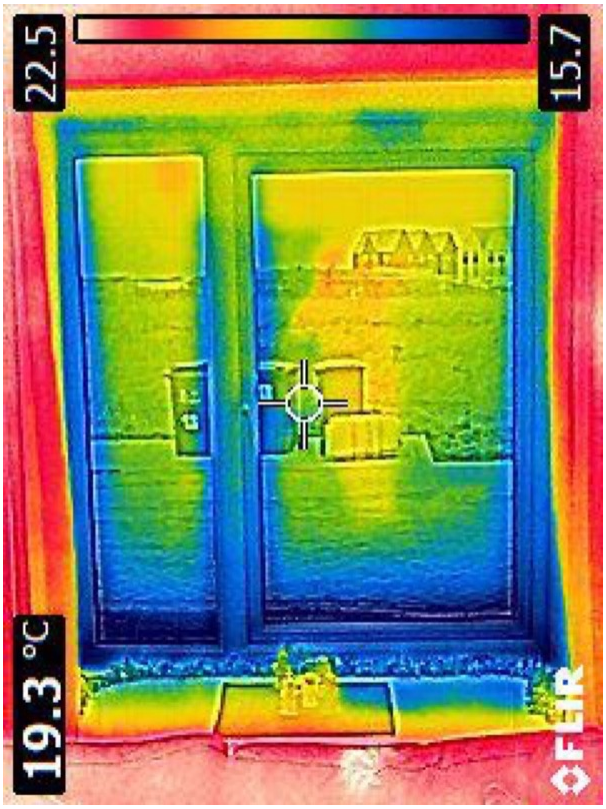
Hallway

Draught seal needs adjusting below the front door



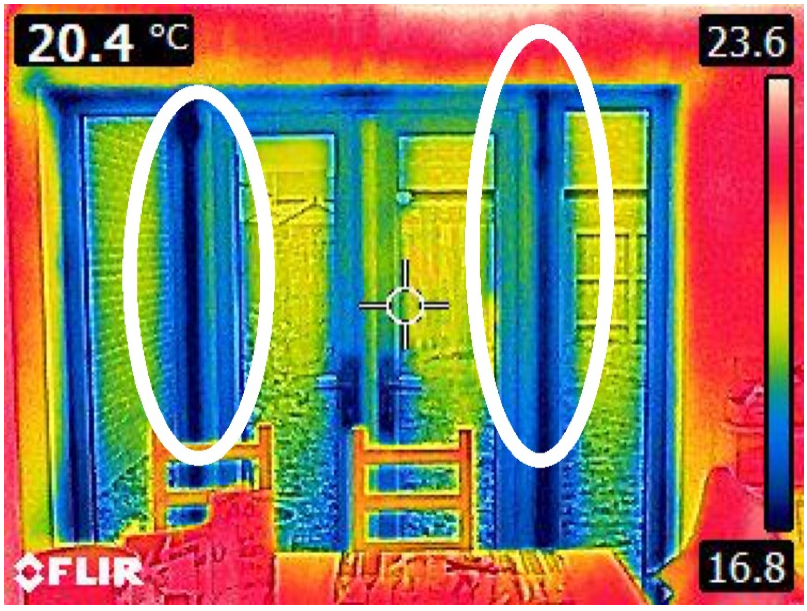
Study

Normal window heat loss pattern.
Low emissivity coating confirmed.



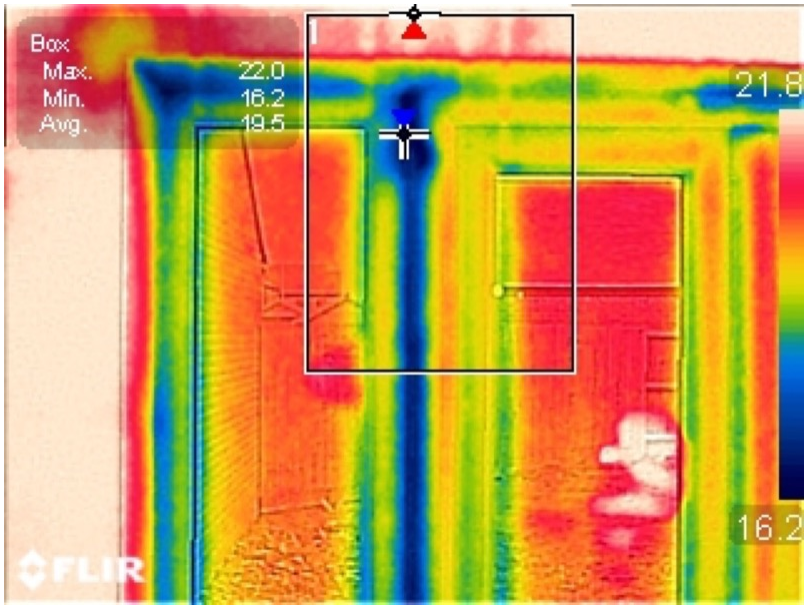
Living Room

Normal window heat loss pattern.
Low emissivity coating confirmed.



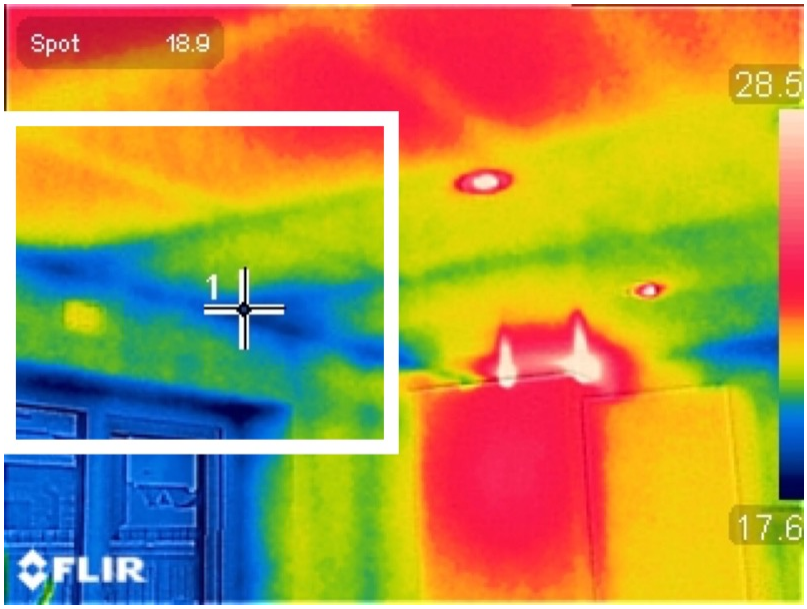
Kitchen

Excess heat loss at the vertical joins in the patio door frame. Expanding foam likely to be missing from the joins



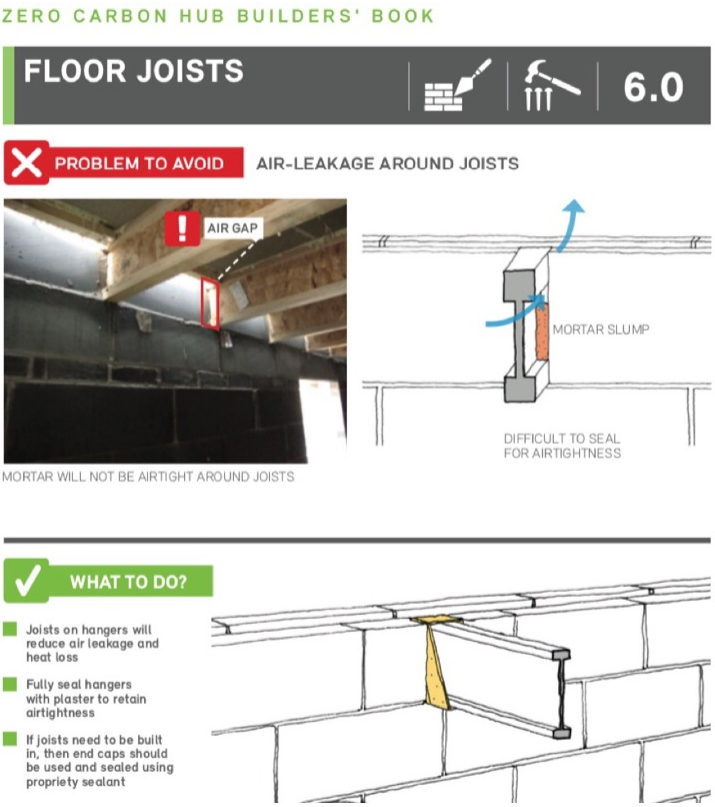
Kitchen

As above, detail



Kitchen

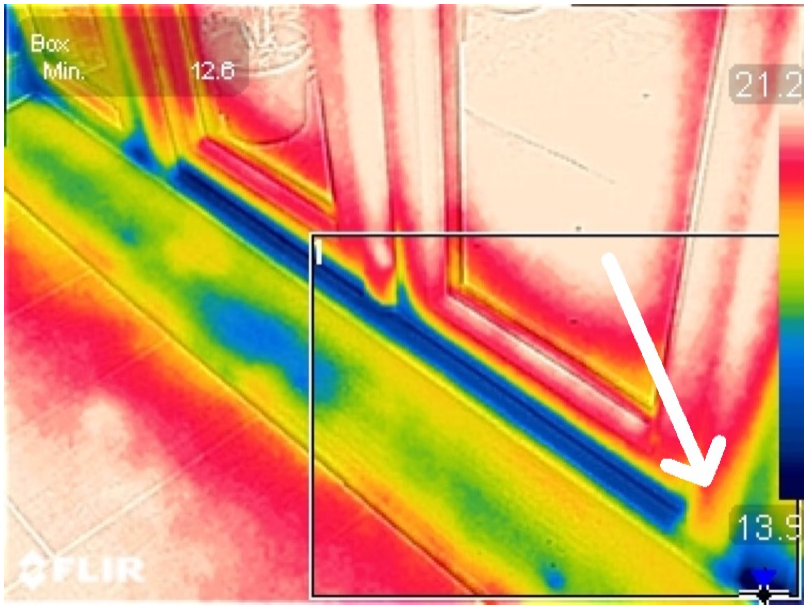
Elevated heat loss where the joists are hung above the Kitchen window. Area is about 2.5 degrees colder than the rest of the ceiling



Kitchen

Kitchen

Normal window heat loss pattern. Low emissivity coating confirmed.

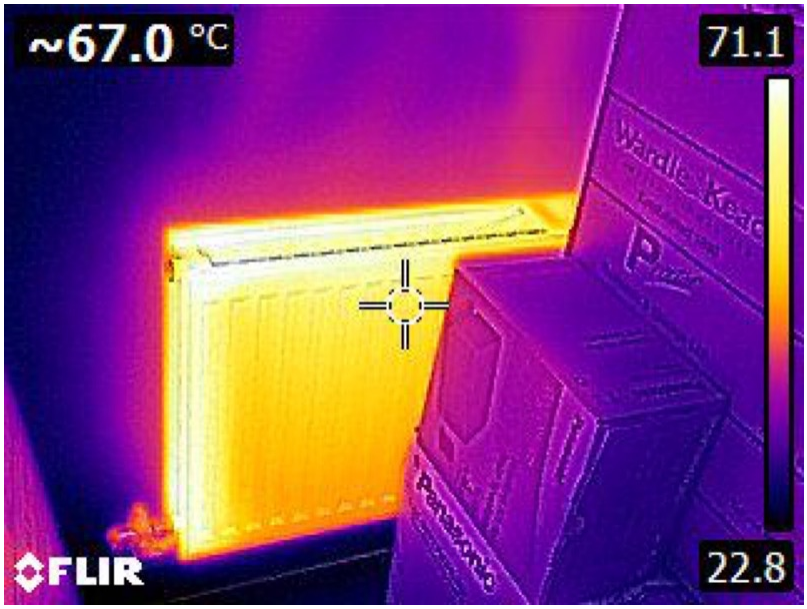


Kitchen

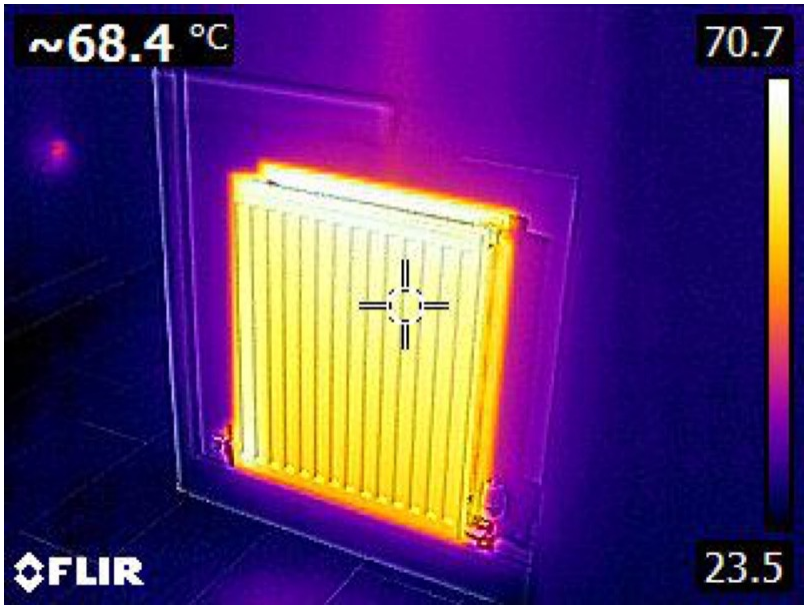
There is excess heat loss below the glazing right of the patio doors, seal is likely inadequate

Loft

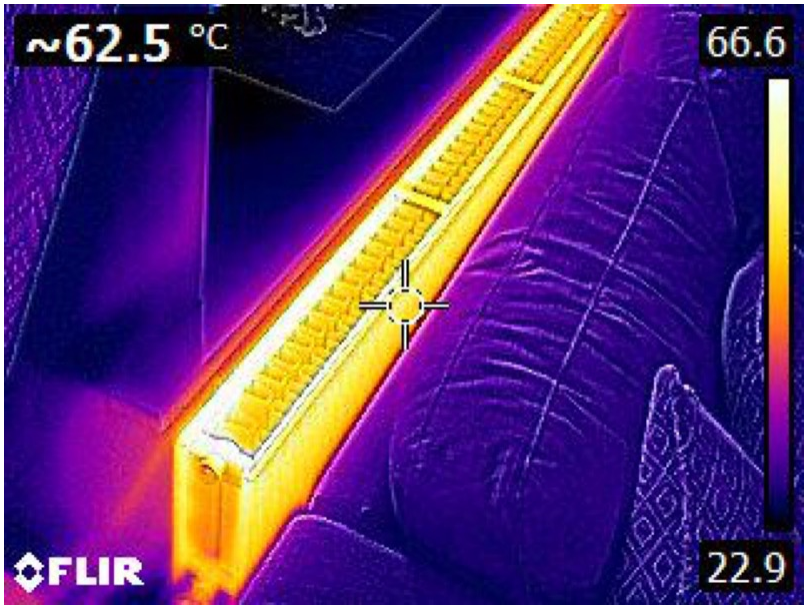
The insulation is not neatly laid and needs adjusting throughout the loft



Kitchen

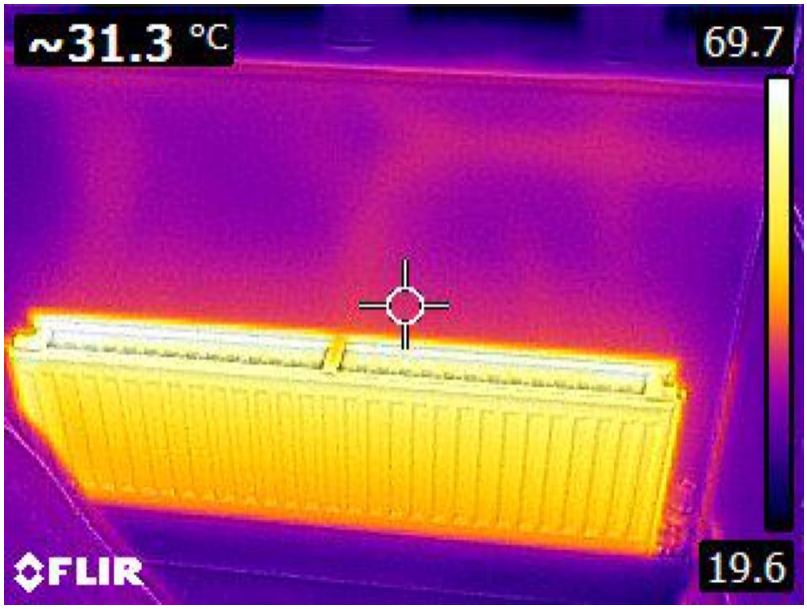


Kitchen

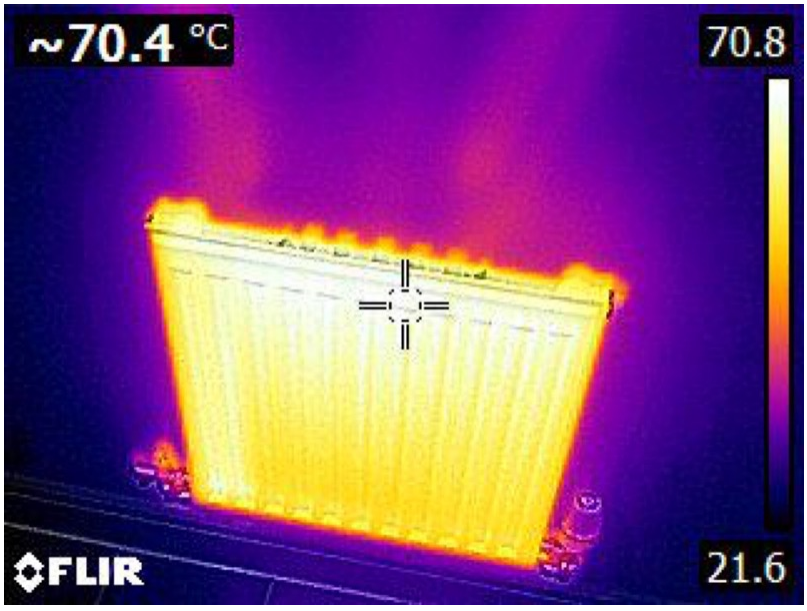


Living Room

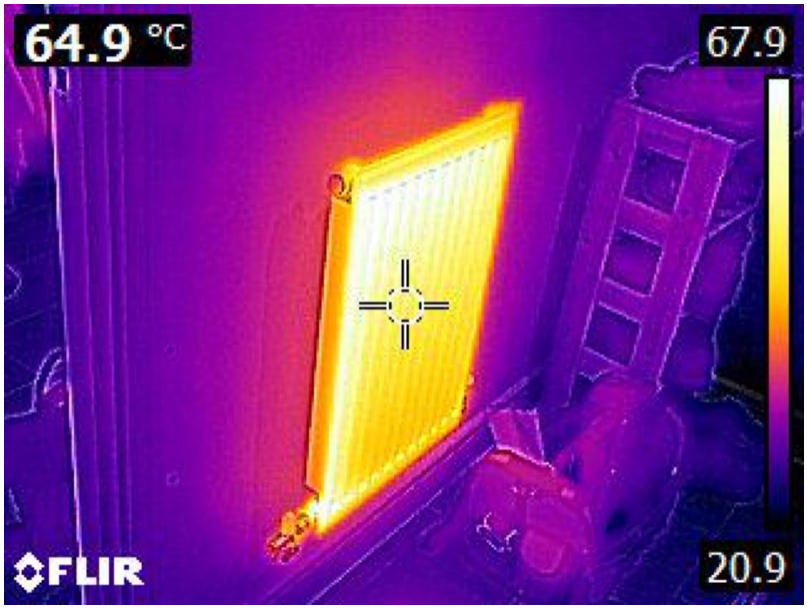
Living Room



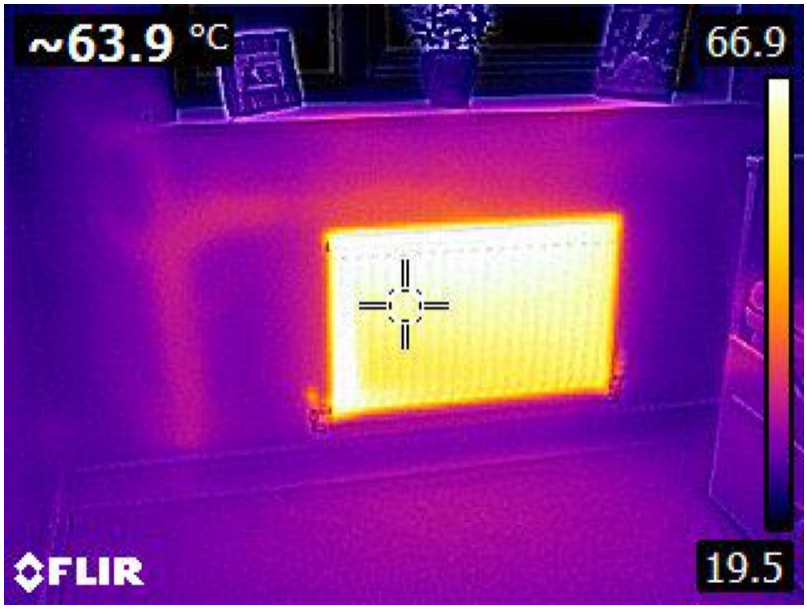
Study



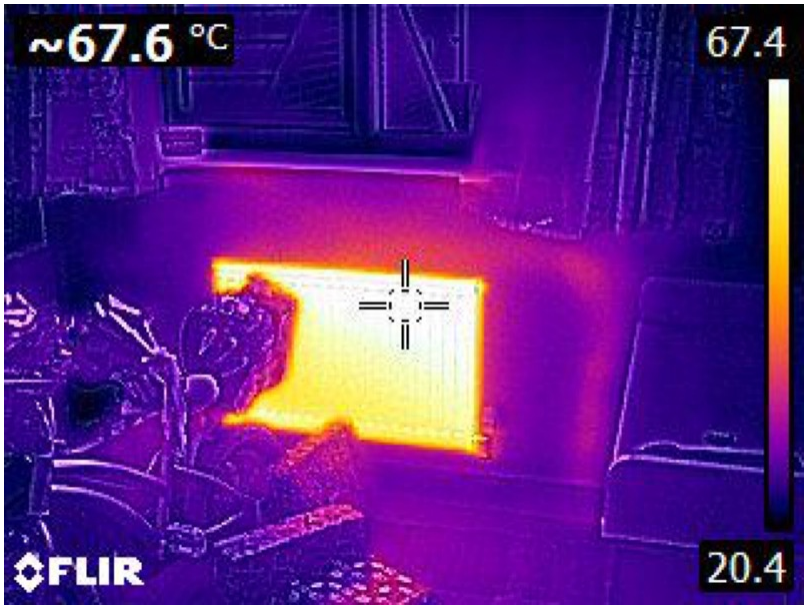
W/C



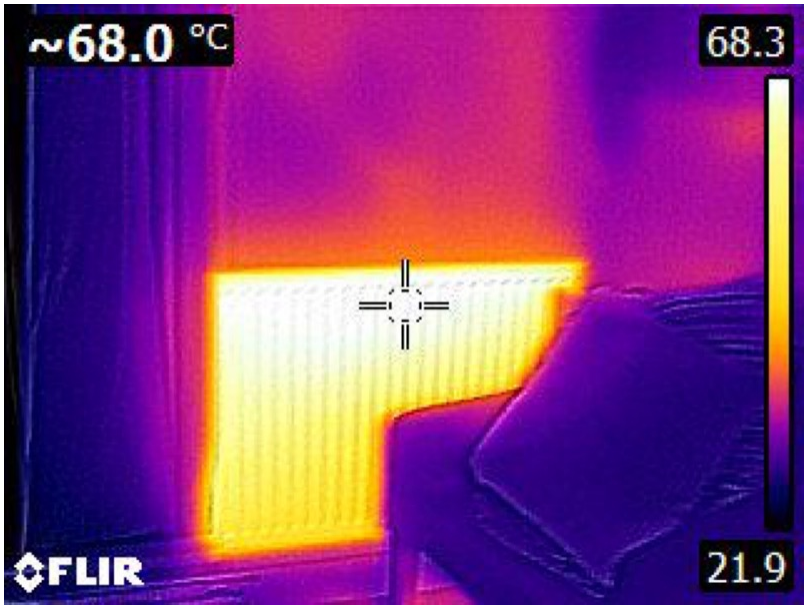
Hallway



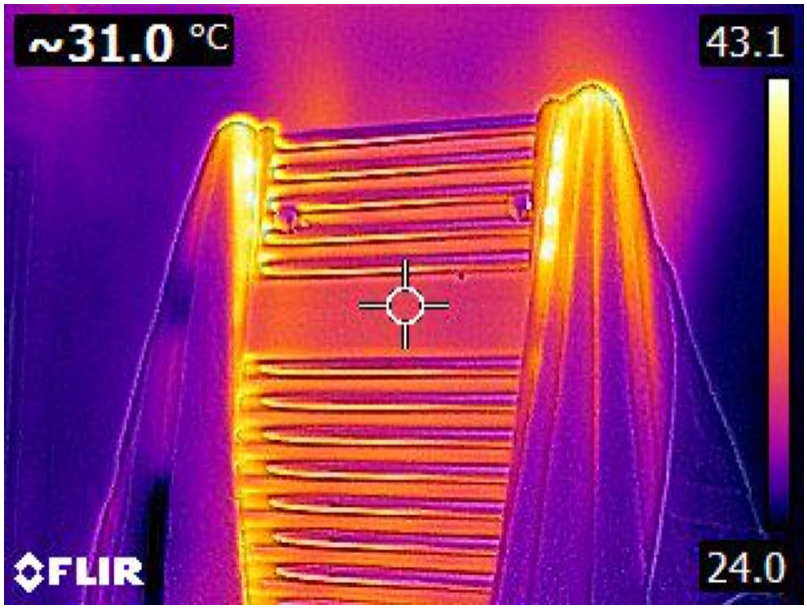
Bedroom 3



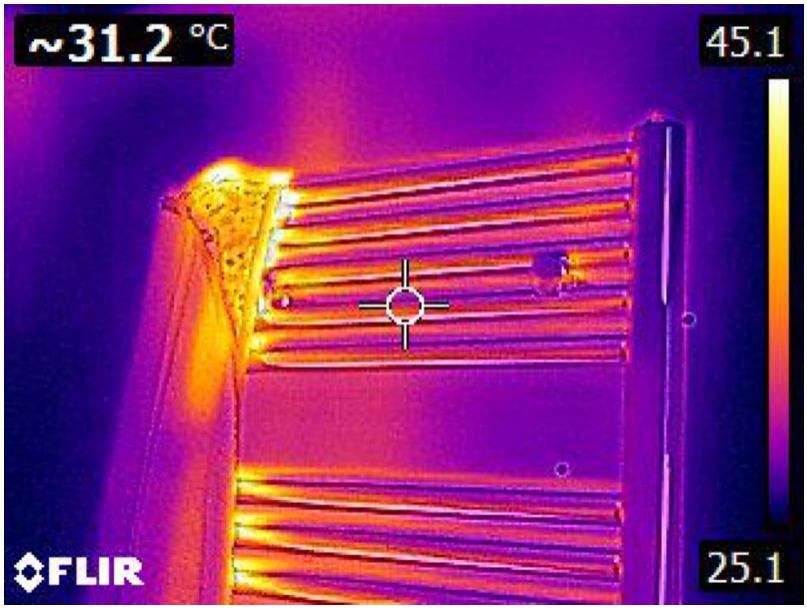
Bedroom 2



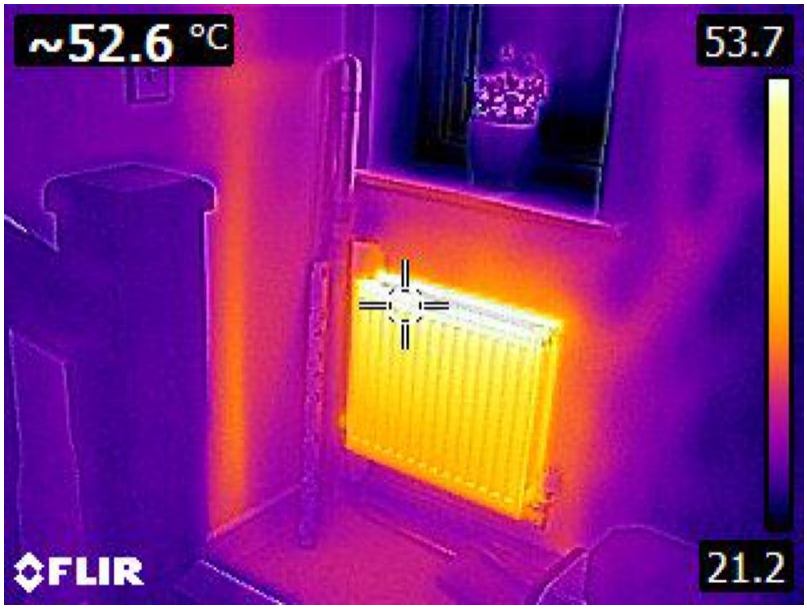
Master Bedroom



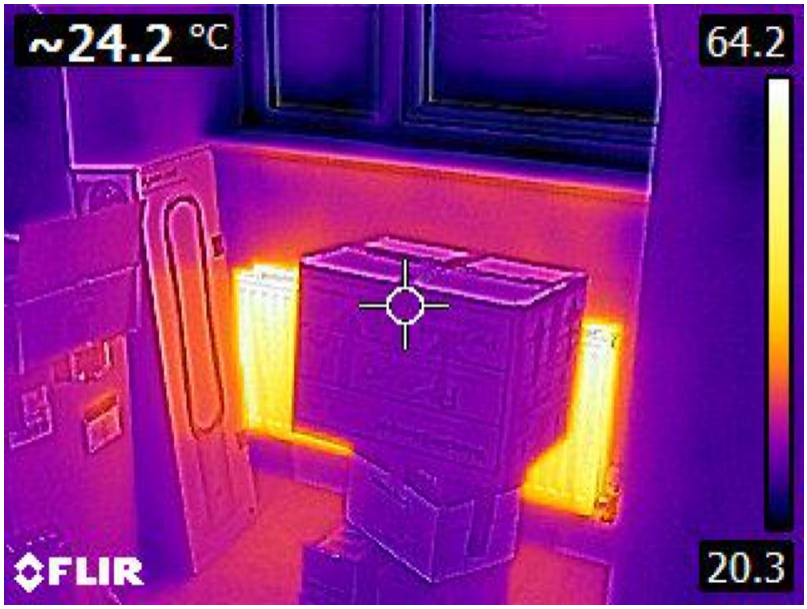
En suite



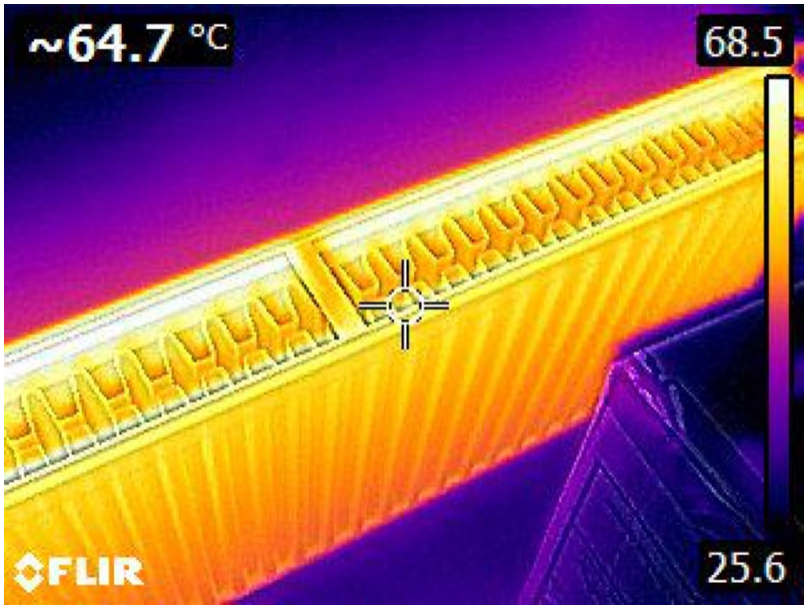
Bathroom



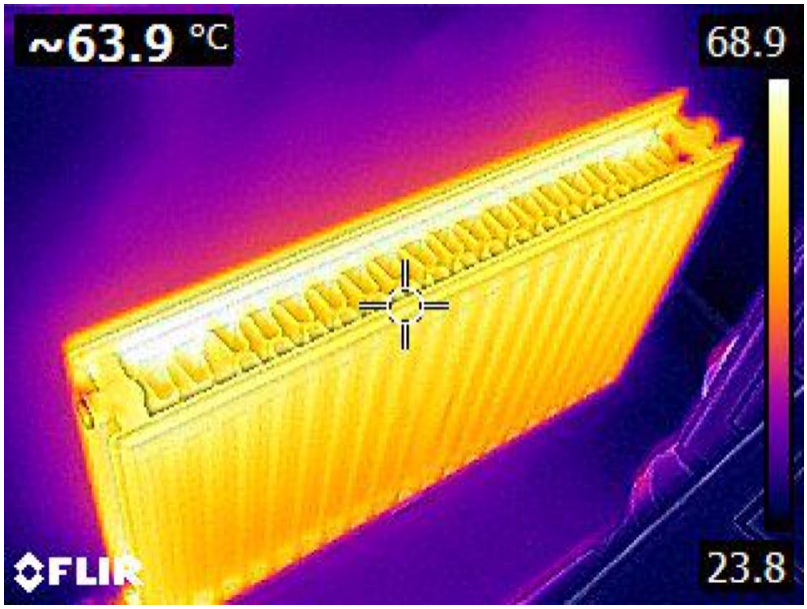
Landing



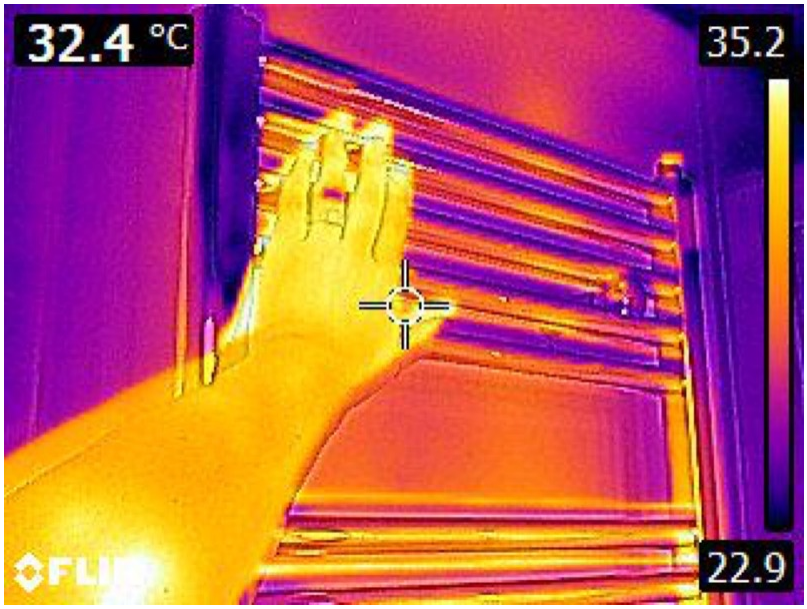
Bedroom 4



Bedroom 4



Bedroom 5



Top floor bathroom

Radiator needs bleeding