Residential Building Thermographic Survey

Sample Report

By

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Report Details

Client	
Address	
Contact Person	
Contact Person Address	
Phone Number	
Email Address	
Thermographer	
Thermographer Certification	ITC Level 2 Certified Thermographer
Survey Equipment	Flir Thermacam SC640 Infrared Camera Reporter 9.2 Software
Inspection Date	
Start Time	
Finish Time	

Internal Temperature - Start	22ºC
Internal Temperature - Finish	21ºC
External Temperature - Start	6.5ºC
External Temperature - Finish	5.5ºC
Wind Speed - Start	6 mph from the North West
Wind Speed - Finish	6 mph from the North West
Humidity - Start	97%RH
Humidity - Finish	94%RH

Information

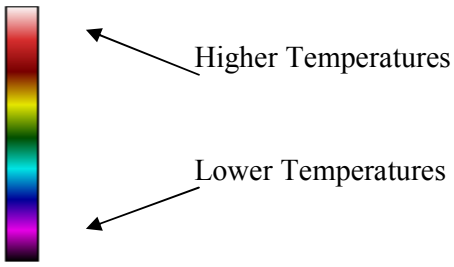
This sample report has been produced to provide prospective clients an example of the type of defects we are able to identify during a thermal imaging residential heat loss survey.

Surveys are carried out both externally and internally to allow us to build up a complete picture of the thermal performance of the property. The internal part of the survey is carried out while also using a blower door system which is used to simulate a wind on all sides of the property. This in turn allows us to detect all draughts and air movements within the property.

A FLIR Thermacam SC640 was used to capture the thermal data which is recorded within the report.

The job of the Thermographer is to interpret the thermal patterns shown in the images and comment on these for the homeowner. The onus is on the homeowner to draw conclusions from this report and undertake any actions that they feel necessary to improve the overall thermal efficiency of the property.

The thermal images were taken whilst the property was under normal heating conditions. These images are shown in a colour palette called 'rainbow high contrast' (see sample scale below). You will see by the scale on the right hand side of each image that cold areas are shown to be dark whilst hot areas are shown to be white.



The temperature scale on the side of both the internal and external images has been adjusted to highlight any anomalies and therefore may not reflect the exact temperature of all objects in the image.

The survey was conducted at a time to ensure that the solar loading effects of the sun were eliminated and to help with attaining a minimum temperature difference between internal and external temperatures of at least 11ºC.

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Pixel Thermographics Ltd
ITC Level 2 Certified Thermographic Engineer

SCOPE OF SURVEY

This survey was conducted with the intention of inspecting and highlighting areas of the property showing signs of:

- Thermal Bridging
- Air Leakage
- Discontinuous Insulation
- Water Ingress
- Air Infiltration (Draughts)
- Structural Defects

Thermal Bridging

Thermal bridging occurs where the building structure is not sufficiently insulated to prevent heat being conducted to the external surface of the property. This can lead to condensation and mould growth within the property along with wasting energy.

Air Leakage

Air leakage can occur where paths are available for air within the property to escape the building and thus cause energy wastage.

Discontinuous Insulation

Discontinuous or missing insulation within a property can cause heat to be lost from a building. This can lead to condensation and mould growth within the property along with wasting energy.

Water Ingress

Water ingress within a property can lead to significant damage to the structure and also result in energy loss through damaging insulation.

Air Infiltration (Draughts)

Air infiltration (draughts) within a building can cause significant energy loss and result in heating systems having to work harder to maintain set-points.

Structural Defects

Buildings over a period of time are subject to movement and degradation of materials which can result in thermal anomalies.

EXECUTIVE SUMMARY

The survey has highlighted a number of anomalies within the property resulting in heat loss or energy wastage.

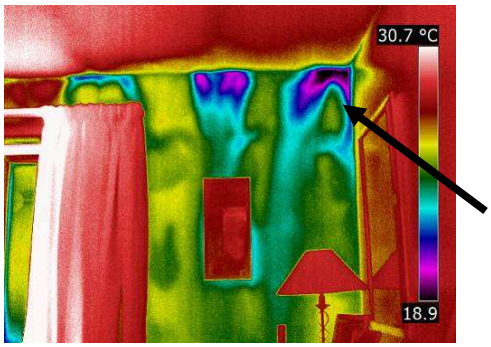
The key concerns are as follows:

1. Air Ingress Behind Plasterboard Walls
2. Conductive Losses Through Windows
3. Air Infiltration (Draughts)
4. Gaps in Cavity Wall Insulation

1. Air Ingress Behind Plasterboard Walls

The survey highlighted significant cooling within the property due to cold air movement behind plasterboard walls. This air appears to enter behind the walls from within the loft where it is suspected that the tops of the plasterboard walls are not sealed.

The images below show the effect of this cold air movement:

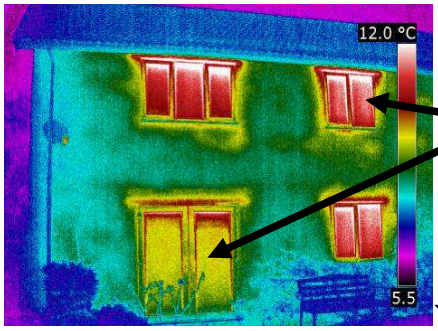


Cold air movement behind plasterboard walls

This cold air movement will significantly cool the affected areas. The tops of the plasterboard walls should be sealed or blocked off within the attic area to prevent this cooling effect.

2. Conductive Losses Through Windows

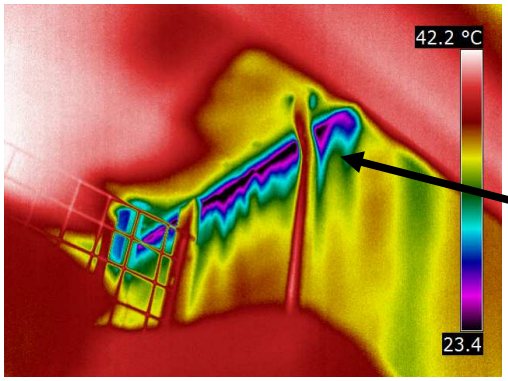
The double glazed units within the property appear to be less effective in terms of insulating performance that expected. The windows may have lost the gas or vacuum originally present and therefore results in higher heat losses.
The image below demonstrates the losses through the windows compared to the losses through the glass of the patio door which is a newer unit:



Higher heat loss from windows compared to patio door.

3. Air Infiltration (Draughts)

Direct air infiltration (draughts) were noted in various parts of the property. Typical areas included windows, doors and loft access hatches. Many of the areas could be greatly improved by simply re-sealing using suitable silicone sealant.

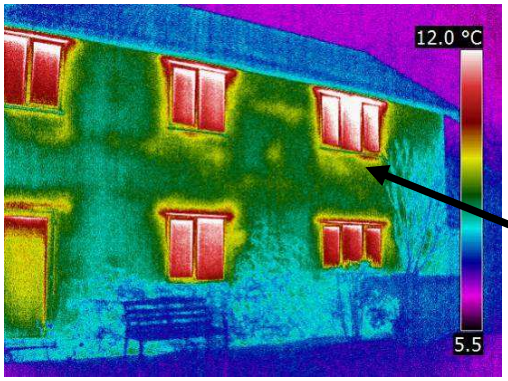


Cold air ingress from visible gap at ceiling / wall detail

4. Gaps in Cavity Wall Insulation

The external part of the survey has highlighted suspected gaps in the cavity wall insulation where the insulation may have sagged or settled over time.

The image below shows this effect:



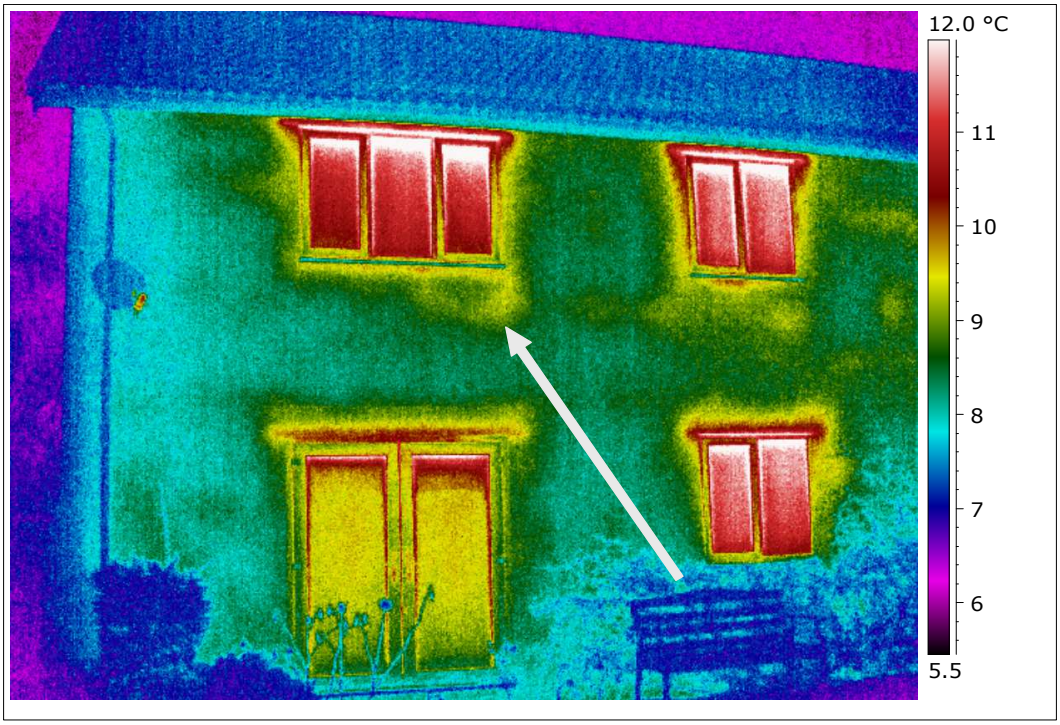
Possible gaps in cavity wall insulation are highlighted as warmer areas of wall.

The overall performance of the cavity wall insulation on the majority of the walls appears to be reasonable.

The following pages of this report contain a selection of images to demonstrate how we detect and analyse anomalies within residential properties

INDEX OF IMAGES

Area: External - South Elevation - Left

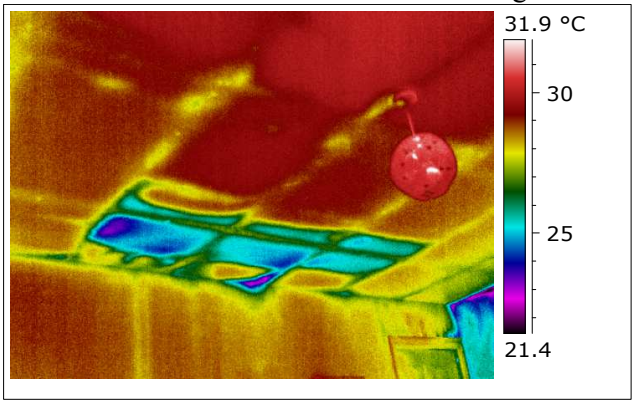


Comment:
Thermal image highlights possible gaps in cavity wall insulation – particularly underneath and to the side of the windows where insulation may have settled over time.

The windows exhibit conductive heat losses which are higher than expected for double glazed units. These windows may have reduced insulating performance due to possible loss of gas or vacuum.

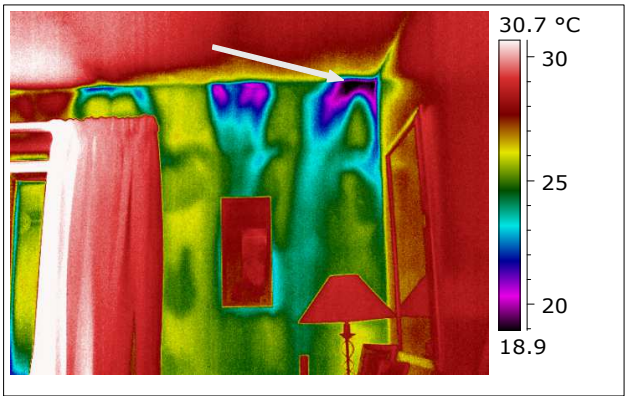
Thermal bridging noted above windows & patio door where support beams have not been insulated effectively and act as conductors for heat to be lost

Area: 1st Floor - Master Bedroom - Ceiling



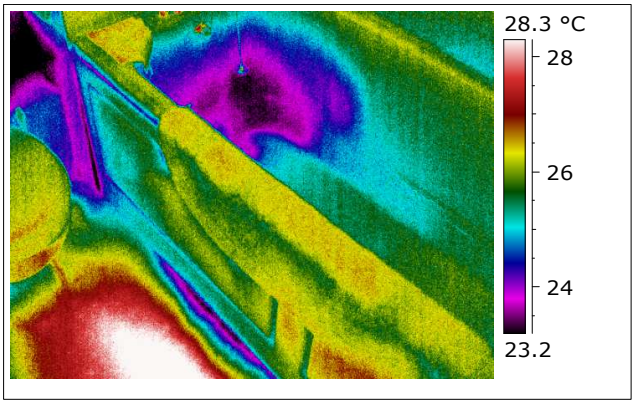
Comment:
Loft insulation in this area appears consistent and effective except in the area directly below the water tank area.

Area: 1st Floor - Master Bedroom - Wall



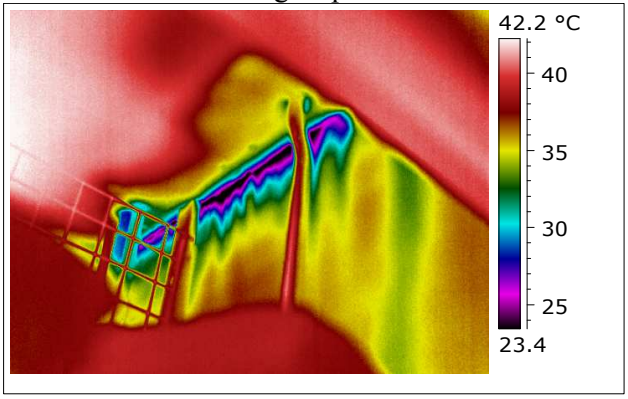
Comment:
The cool (darker) areas on the walls indicate cold air movement behind the plasterboard walls.
This cold air enters from within the loft area and results in significant cooling of the area. Any gaps at the top of the plasterboard walls should be suitably blocked to prevent this air movement.

Area: 1st Floor - Master Bathroom - Bath Panels



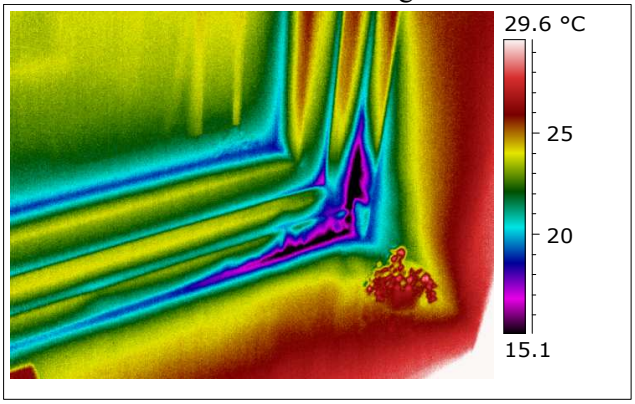
Comment:
Cool air appears to enter the room via the side and base of the bath panel. This air is likely to enter via the wall penetrations (concealed) where the pipework enters the room behind the bath.
This should be sealed using suitable silicone sealant.

Area: 1st Floor - Airing Cupboard - Wall



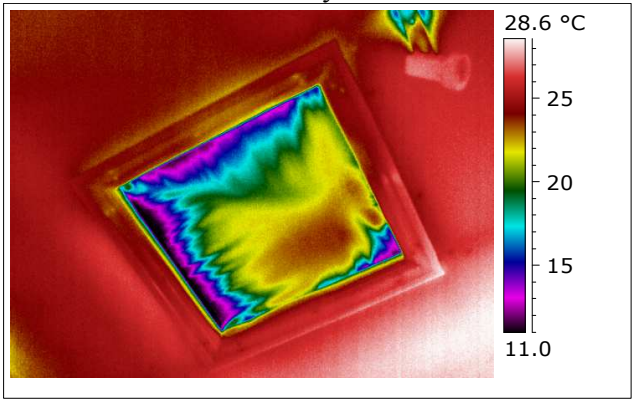
Comment:
Cool air enters the room via the gap between the wall and the ceiling.
This gap should be suitably sealed.

Area: 1st Floor - Bedroom 4 - Right Window



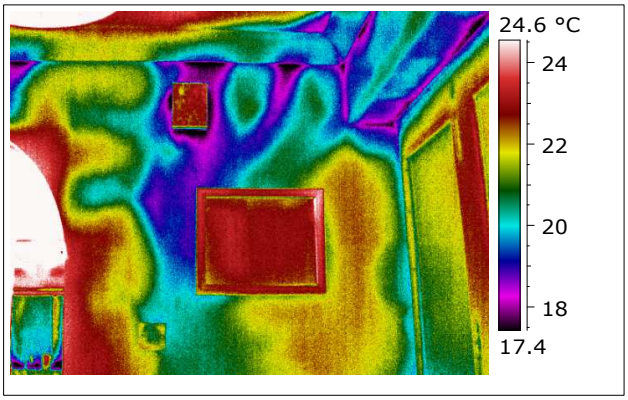
Comment:
The cool (dark) areas indicate direct cold air entry into the room.
This air appears to enter via the outside of the frame and via a visible gap in the silicone sealant. This sealant should be removed and resealed.

Area: Ground Floor - Study - Loft Access Hatch



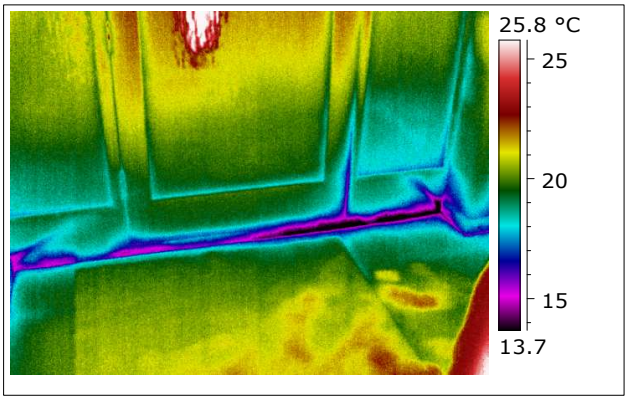
Comment:
Air entry into the room noted from the loft access hatch.
A draught excluder could be fitted to prevent this cold air entry.

Area: Ground Floor - Entrance Hall - Wall



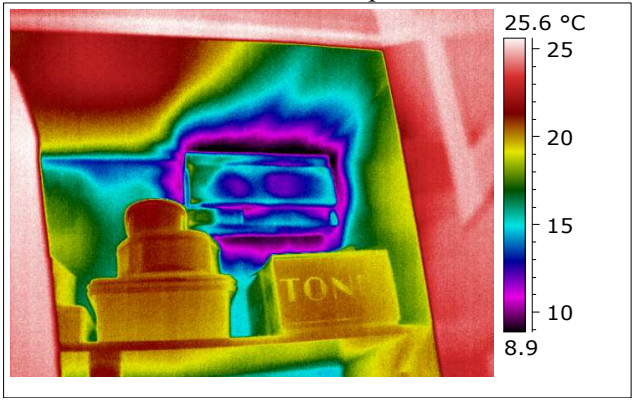
Comment:
The cool (darker) areas indicate cold air movement behind the plasterboard walls.
This cold air appears to originate from the porch area and preventing this cold air from entering the wall would help reduce heat losses in this area.

Area: Ground Floor - Entrance Hall - Front Door Frame



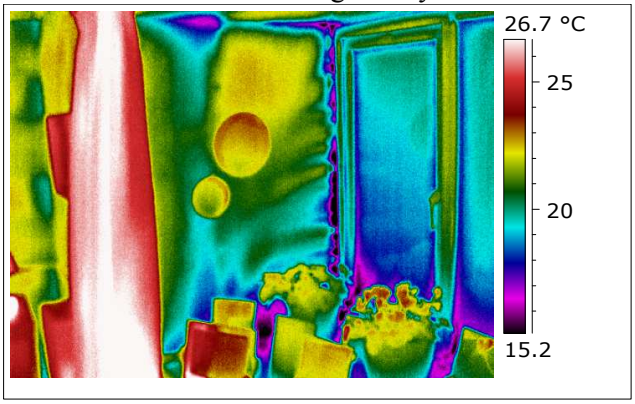
Comment:
The cool (dark) areas indicate direct cold air entry into the room.
This air appears to enter via the outside of the frame. The area directly behind the frame should be inspected and sealed appropriately.

Area: Ground Floor - Boot Cupboard - Electrical Board



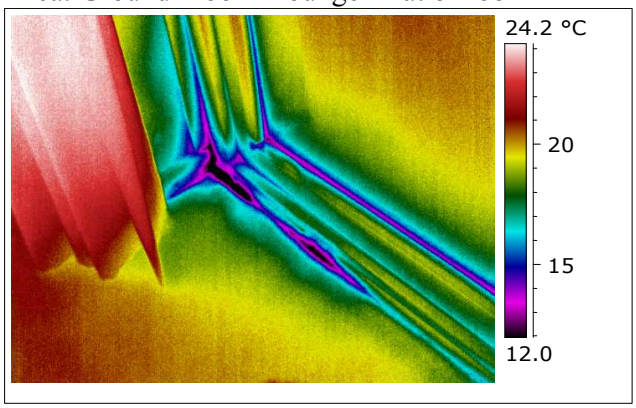
Comment:
The cool (dark) areas indicate direct cold air entry into the room.
This air appears to enter via the cable penetration in the wall behind which should be sealed where possible.

Area: Ground Floor - Lounge - Bay Window



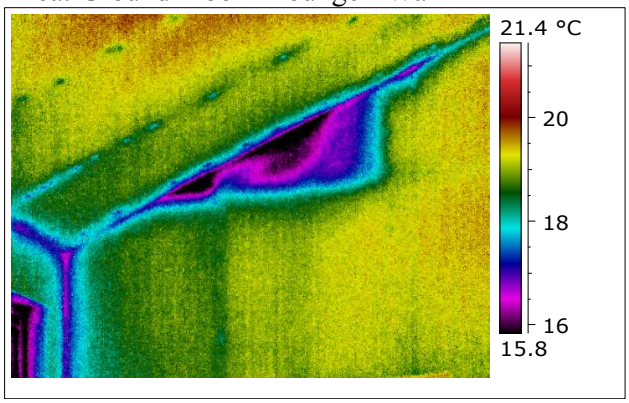
Comment:
The thermal image highlights several anomalies.
Significant direct air ingress in s noted via the sides of the window frame which appears to be poorly sealed. Additionally, air appears to move behind the sides of the dormer construction plasterboard walls. Air appears to enter from the top and bottom. These area should be inspected externally to locate any gaps which should then be effectively sealed.

Area: Ground Floor - Lounge - Patio Door



Comment:
Air ingress noted from the frame at the base of the door.
The area directly outside this point should be inspected and sealed appropriately.

Area: Ground Floor - Lounge - Wall



Comment:
The thermal image highlights a missing section of insulation at the top of the wall towards the patio door.