Thermal Imaging Survey Report

Client:
Client 1
Town
City
Postcode

Survey Date:
22nd March 2022

Report Date:
6th April 2022

By

Glenn Kightley

Red Fox Thermography
21 Old Hale Way, Hitchin, Hertfordshire, SG5 1XJ
redfoxthermal.com

RED FOX THERMOGRAPHY

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Site Conditions:

Survey Start Time	19:45	Ext. Starting Humidity	49%
Survey Finish Time	21:00	Ext. Finishing Humidity	51%

Starting External Temperature	8°C	Wind Speed	14 Mph
Finishing External Temperature	7°C	Direction	East

Maximum temperature 24hr before survey	18°C
Minimum temperature 24hr before survey	5°C
Local sunset	18:15

Day preceding survey: partially sunny, no precipitation within 24 hours.

As instructed, the client ensure the central heating was on for a period 72 hours before the survey time.

Survey Equipment:

Thermal Camera: Mavic 2 Enterprise Advanced (Thermal Camera resolution: 640 x 512)
Temperature Sensor: EEEkit temperature/humidity sensor for ambient condition monitoring

Camera Calibration Details:

Camera calibration certificate provide in Annex
EEEkit sensors are accurate to ±1°C and ±5% Relative Humidity.

Introduction

Building thermography is a process by which radiation emitted from surfaces in the built environment can be captured using specialised cameras to provide useful visual information regarding their thermal behaviour. By studying and comparing qualitative data from these thermal images (thermograms) it is possible to identify potential build defects, areas of potentially poor insulation and possible air leakage, and thus help focus any remedial action – should it be required.

By its definition, building thermography is an entirely non-invasive technique and as such, the results can only ever be indicative - subject to direct access to the underlying materials, which is beyond the scope of a thermography survey.

The client should consult with a qualified architect and/or competent builder before embarking on any improvement or corrective work inferred from this report.

Methodology

The survey methodology adopted for this report follows those process and procedures outlined in [AD-1] and [AD-2]. Site survey conditions and anomaly detection have been recorded in accordance with the principles outlined in [AD-3].

Further detailed in full report.

Terminology

See full report version.

General Building Description

- Semi-detached bungalow with bedroom and bathroom in converted loft space.
- Construction Era: 1960s (est.)
- Wall type: brick-built cavity wall with evidence of external insulation injection.

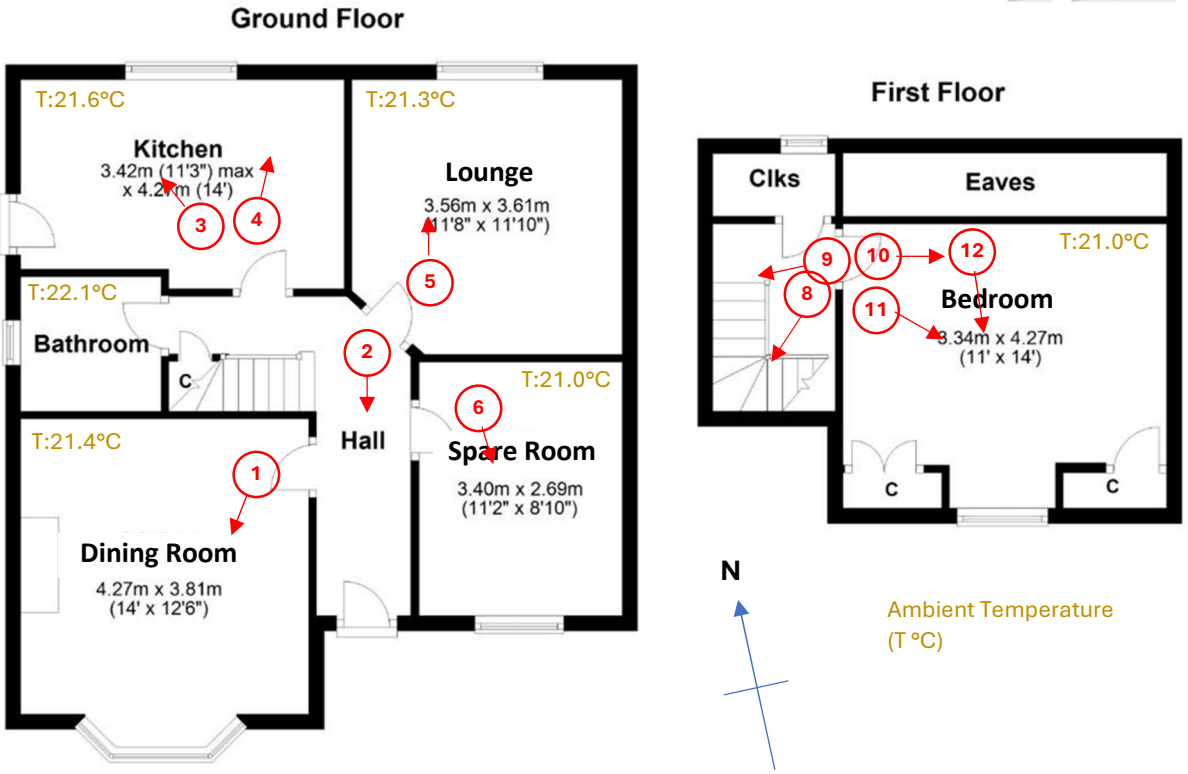

Figure 1: Floor Plan with Direction of Image Capture Shown (Ambient air Temperature Indicated)

Kitchen

Conditions:

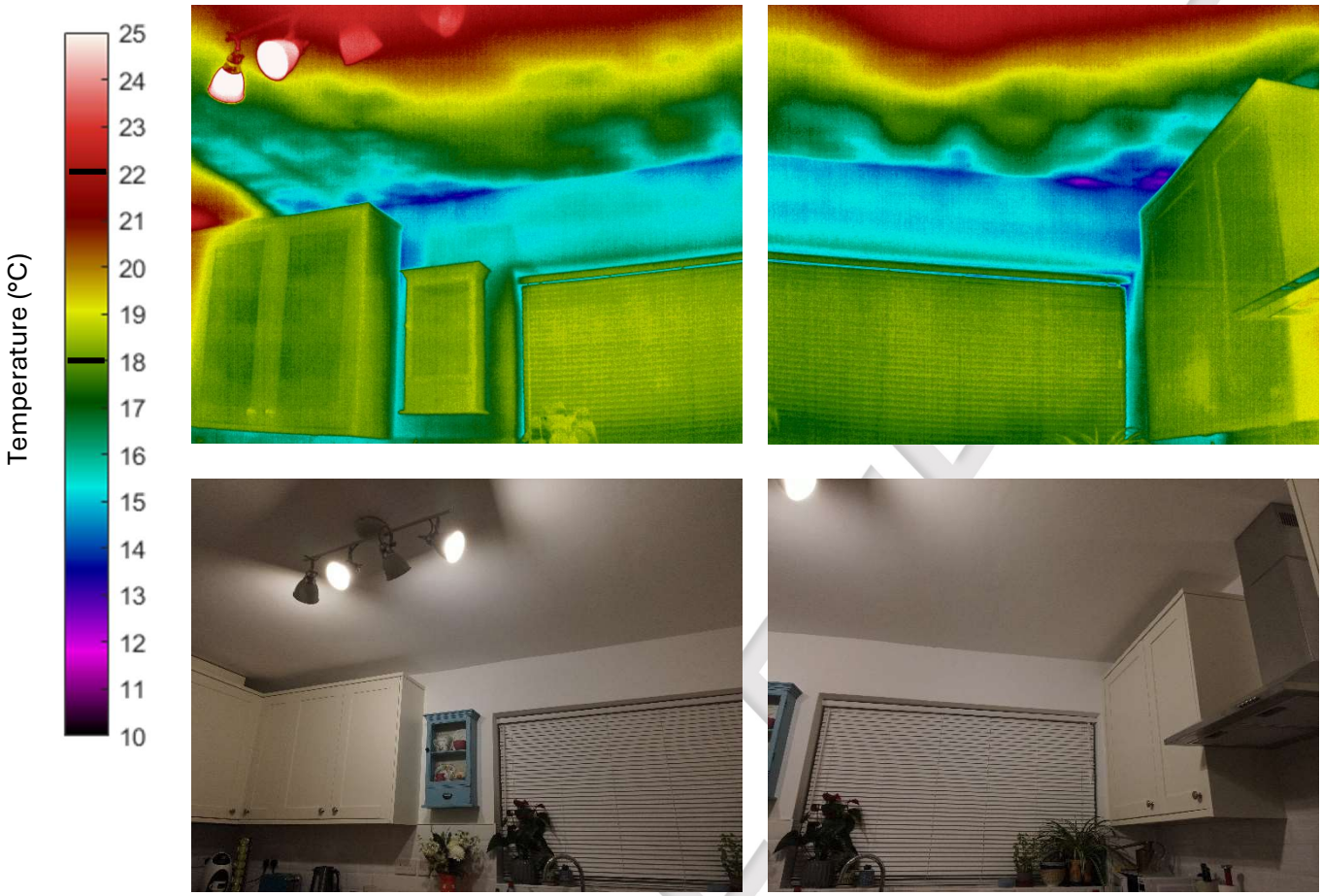

Figure 2: View of Front Door (View 3 (left) and 4 (right))

- Ambient air temperature: 21.6°C
- Emissivity: 0.93
- RAT: 22°C

Comments

In these images, the scale has been further reduced at the lower end to +10°C to show include the colder areas of the image over end wall of the kitchen. The view is split to capture both ends of the external kitchen wall. The cold areas are indicative of poorly fitted insulation at the junction between the ceiling joists and the rafters.

Spare Room

Conditions:

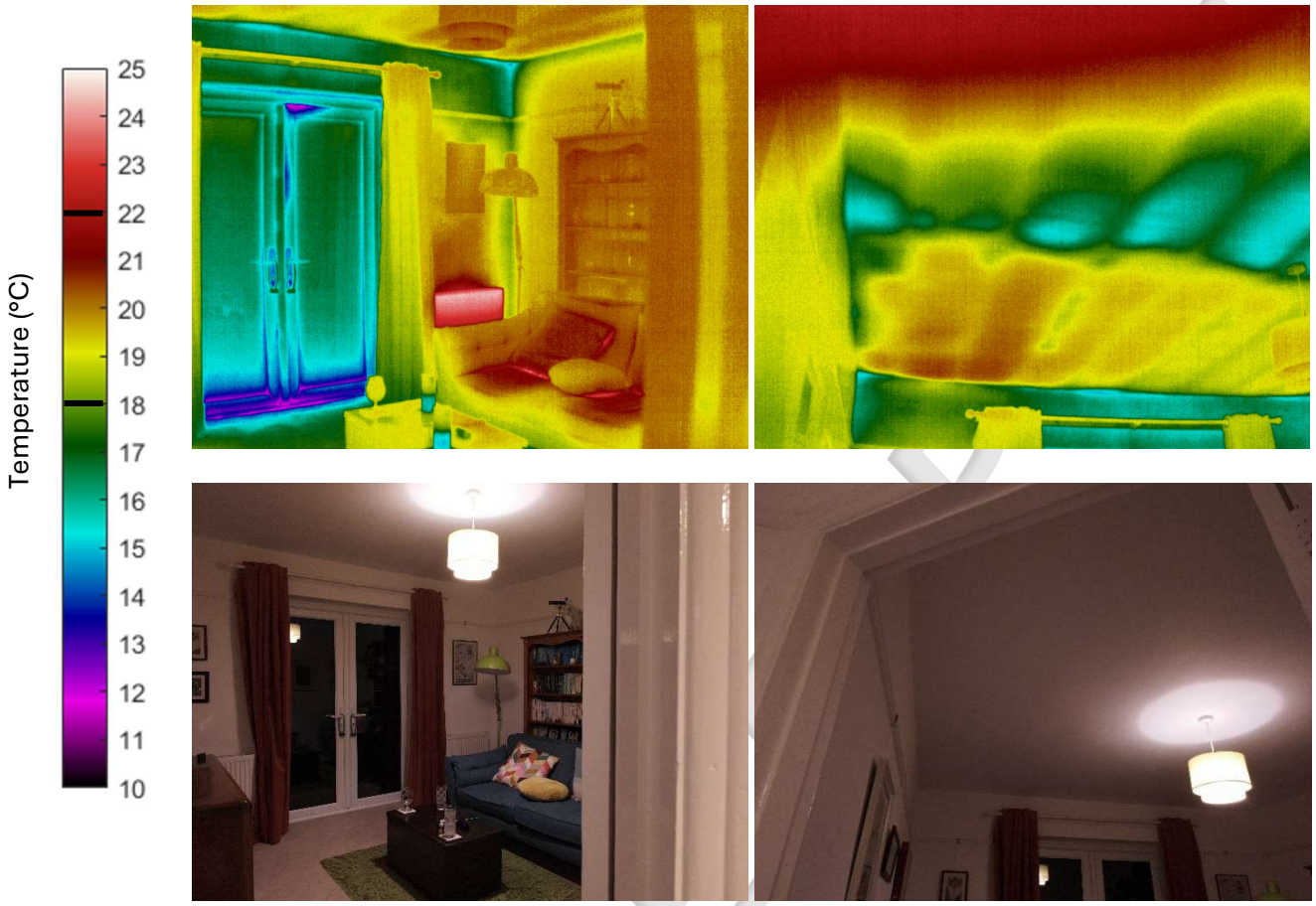

Figure 3: View of Lounge Ceiling (View 6 and 7)

- Ambient air temperature: 21.3°C
- Emissivity: 0.93
- RAT: 22°C

Comments

There is a significantly cooler area present on the ceiling in the Lounge; this is coincident with the stud wall on the first floor dividing the eaves cupboard space from the main bedroom. The cause of this is not certain but could result from colder air ingress from the room space to the ground floor ceiling. There is evidence of air ingress at the upper potion of the right hand UPVC French doors (shown by the darker colours). The seal here should be checked and repaired/replaced if required.

External Profile (South)

Figure 4: View of Southern External Profile from Road

Conditions:

- Ambient air temperature: 7.0°C
- Emissivity: 0.85
- RAT: -5.0°C (front and rear)
- Distance to Target: 8m
- Humidity: 51%

Comments

The southern aspect shows noticeably warmer indicative temperatures. Although there will likely be a component of residual solar gain during the day, the apparently high temperatures of these walls indicate significant heat loss through these surfaces. This could be indicative of cavity wall insulation missing in these areas. Due to the reflective nature of the roof tiles and the clear, cold sky, no cause for concern should be raised regarding the apparent cold temperatures in these areas.

Conclusions and Recommendations

Provided for full report.

Annex A – Calibration Certificate

Provided for full report.