

Infrared Thermographic Inspection Report



Service Provider: ConforX – Thermal Imaging & Insulation Solutions

Property Type: Residential apartment with terrace

Location: Valencia, Spain

Date of thermographic images: 23 January 2024

Date of thermographic report: 24 January 2024

Executive Summary

This report presents the results of a qualitative infrared thermographic inspection carried out to assess the thermal behavior of the apartment and identify potential heat-loss paths, thermal bridges, and areas of interest related to moisture or service installations. The inspection confirms generally normal residential thermal performance, with moderate envelope-related heat transfer at exterior-facing elements and no evidence of active defects at the time of inspection.

1. Methodology

The inspection was performed using a handheld infrared camera, capturing paired visible-light and thermographic images of the same locations for direct comparison. Surface emissivity was adjusted according to material type (typically $\epsilon = 0.85$). Interpretation is based on relative temperature differences, thermal patterns, and building context, rather than absolute temperature values.

2. Inspection Conditions

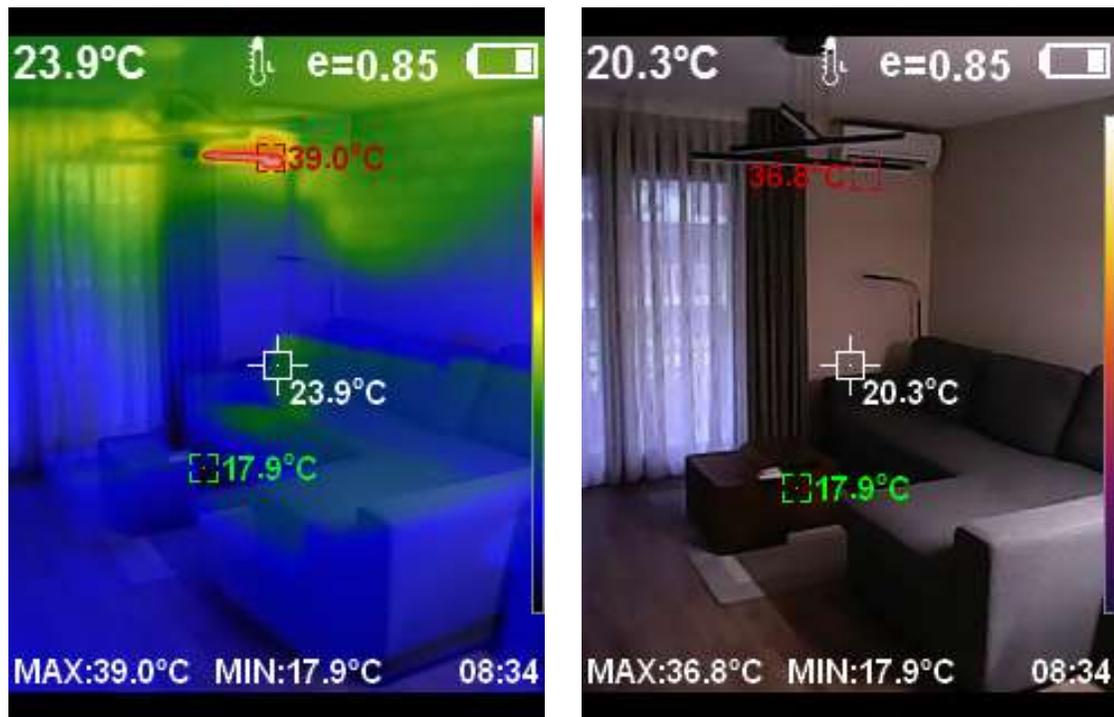
Interior surface temperatures during the inspection ranged approximately between 17.9 °C and 23.9 °C. Localized higher temperatures up to approximately 40–41 °C were observed at active electrical appliances. Exterior reference temperature was

derived from terrace thermographic images and estimated at approximately 9–10 °C, providing sufficient thermal contrast for qualitative analysis.

3. Thermographic Findings – Room-by-Room Analysis

Living / Daily Room – Exterior Wall and Window

The paired images show a gradual temperature reduction toward the exterior wall and window area. This pattern is characteristic of conductive heat transfer through façade-adjacent elements and indicates the presence of thermal bridging at window reveals. Such behavior is common in residential buildings and may contribute to localized thermal discomfort and increased heating demand during colder periods.



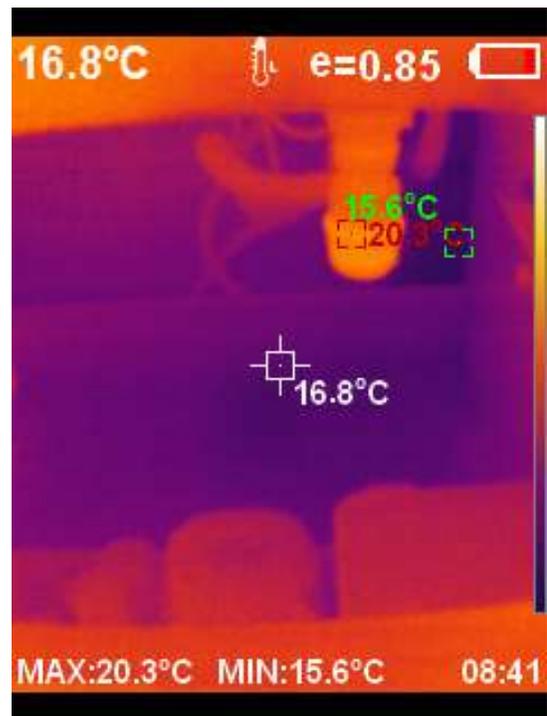
Kitchen – Worktop and Appliance Area

The thermographic image shows a localized high-temperature area corresponding to the coffee machine, which was operating at the time of inspection. This elevated temperature is a normal operational thermal signature and does not indicate any fault or abnormal condition. Surrounding surfaces display expected temperature distribution.



Kitchen – Under-Sink Cabinet

Under-sink thermographic images show surface temperatures slightly lower than adjacent cabinetry. This pattern is typical for plumbing voids due to air circulation and lack of insulation. No thermal patterns indicative of active water leakage were observed at the time of inspection.



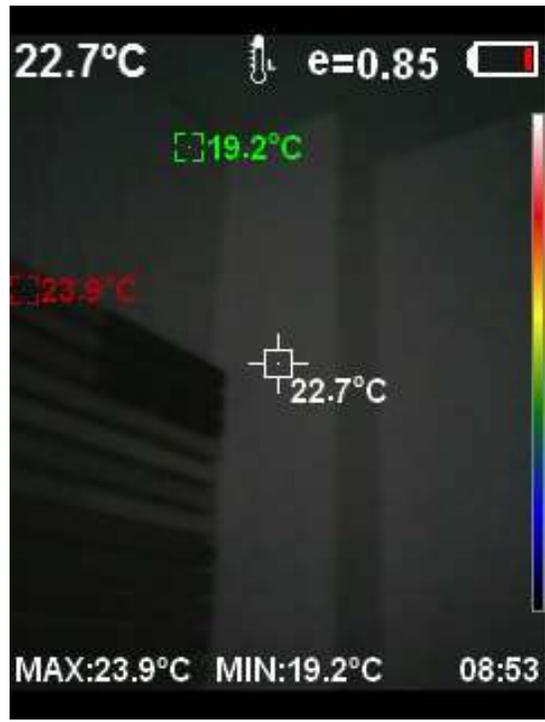
Kids Bedroom – Exterior-Facing Window

The paired images indicate reduced surface temperatures around the window frame and lower wall section. This is consistent with localized heat loss at façade junctions. While not abnormal, such conditions may affect comfort in rooms with prolonged occupancy.



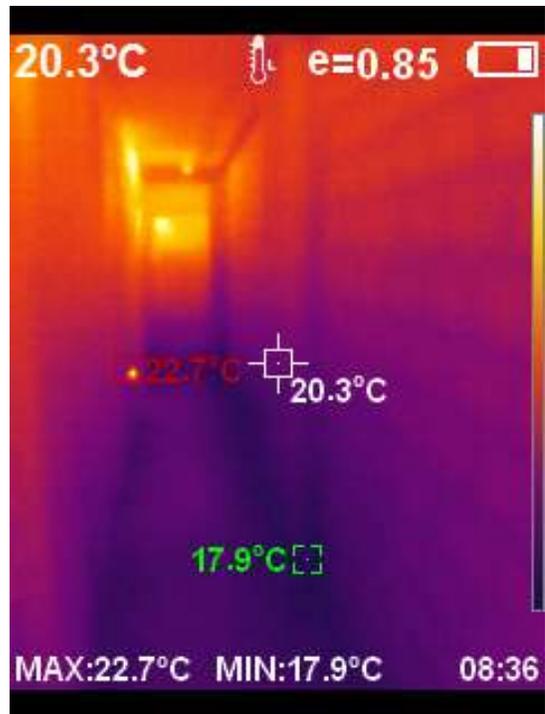
Parents' Bedroom – Exterior Wall

The temperature gradient visible toward the exterior wall reflects normal envelope heat transfer. No localized anomalies suggesting insulation failure or moisture intrusion were detected in this room.



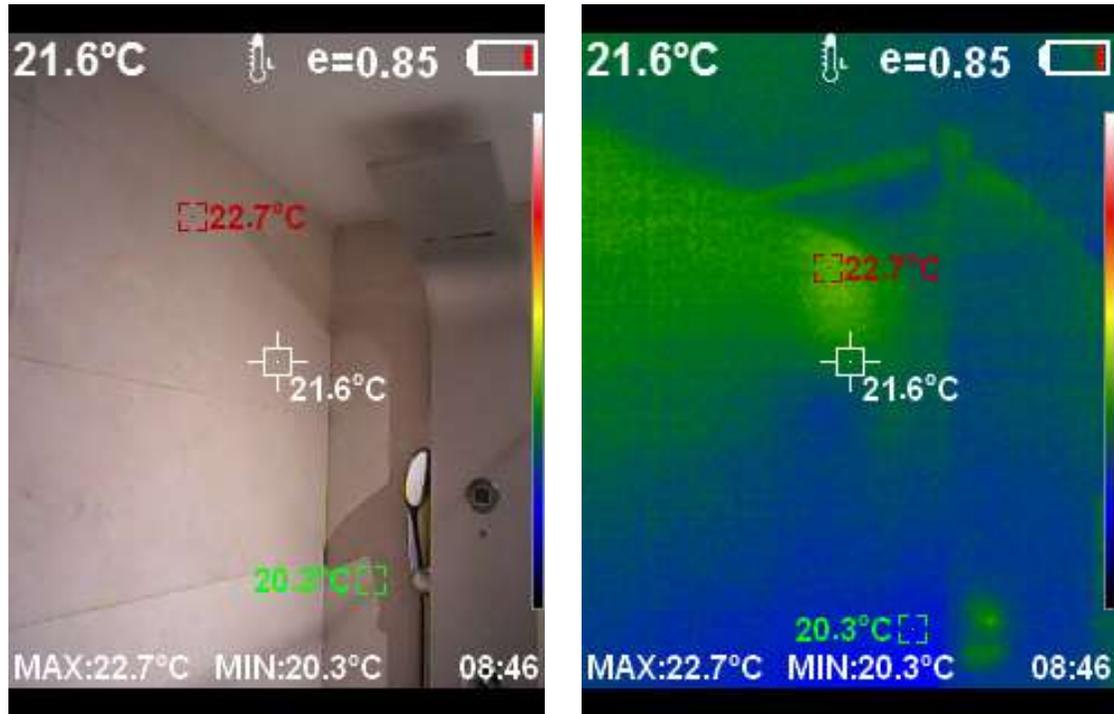
Hallway / Alleyway

Internal circulation areas show stable and uniform surface temperatures. As these spaces are largely surrounded by conditioned rooms, they do not represent significant heat-loss zones.



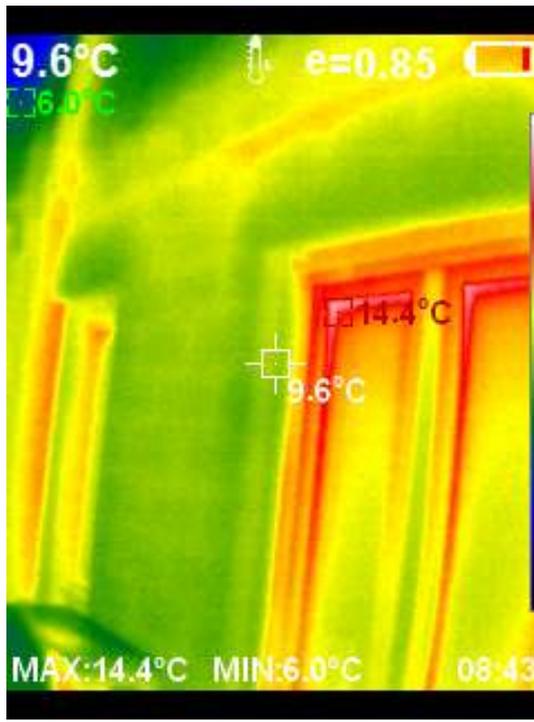
Bathroom

Bathroom walls and ceiling areas display uniform thermal distribution. No thermographic evidence of active moisture intrusion or abnormal heat loss was identified under the conditions present during inspection.



Terrace / Exterior Façade

Exterior thermographic images taken from the terrace provide the reference temperature for the inspection. They illustrate the temperature contrast between interior and exterior surfaces and highlight façade openings as the primary pathways for heat transfer.



4. Assessment and Recommendations

The inspection identified moderate envelope-related heat transfer typical of residential construction. No immediate risks or defects requiring urgent intervention were observed. Improvements such as enhanced window sealing, targeted insulation upgrades, and routine monitoring may improve comfort and reduce energy consumption.

5. Limitations of Thermography

Infrared thermography assesses surface temperature patterns only. It cannot confirm internal structural conditions, insulation thickness, or hidden defects without additional diagnostic methods.

6. Conclusion

This report provides a detailed and transparent overview of the apartment's thermal behavior. Paired visible and thermographic imagery allows clear interpretation and supports informed decisions. Overall performance is consistent with typical residential standards, with opportunities for incremental improvement.

