# Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed using Kaizen SAP 10.2 SAP 10 program, 1.0.1

**Date:** Mon 03 Mar 2025 14:29:53

| Project Information | | | |
|---|---|---|---|
| Assessed By | Michael Juckes | Building Type | House, Semi-detached |
| OCDEA Registration | KAZN000007 | Assessment Date | 2025-03-03 |

| Dwelling Details | | | |
|---|---|---|---|
| Assessment Type | As designed | Total Floor Area | 139 $m^2$ |
| Site Reference | 073 HT E | Plot Reference | 073 HT E |
| Address | Address Line 1, ....., SL5 7HD | | |

| Client Details | |
|---|---|
| Name | Cala Homes (Thames) |
| Company | Cala Homes (Thames) |
| Address | Cala House, 54 The Causeway, STAINES, TW18 3AX |

**This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.**

| 1a Target emission rate and dwelling emission rate | | |
|---|---|---|
| Fuel for main heating system | Electricity | |
| *Target carbon dioxide emission rate* | *10.50 kg$CO_2$/$m^2$* | |
| Dwelling carbon dioxide emission rate | 1.71 kg$CO_2$/$m^2$ | OK |
| **1b Target primary energy rate and dwelling primary energy** | | |
| *Target primary energy* | *54.93 kWh$_{PE}$/$m^2$* | |
| Dwelling primary energy | 21.64 kWh$_{PE}$/$m^2$ | OK |
| **1c Target fabric energy efficiency and dwelling fabric energy efficiency** | | |
| *Target fabric energy efficiency* | *42.26 kWh/$m^2$* | |
| Dwelling fabric energy efficiency | 39.53 kWh/$m^2$ | OK |

| 2a Fabric U-values | | | | |
|---|---|---|---|---|
| **Element** | ***Maximum permitted average U-Value [W/$m^2$K]*** | **Dwelling average U-Value [W/$m^2$K]** | **Element with highest individual U-Value** | |
| External walls | *0.26* | 0.2 | Wl - Stud (0.28) | OK |
| Party walls | *0.2* | 0 | Party Wall (0) | **N/A** |
| Curtain walls | *1.6* | 0 | N/A | **N/A** |
| Floors | *0.18* | 0.16 | Flr - Ground (0.16) | OK |
| Roofs | *0.16* | 0.11 | Rf - Ins Rafter (0.15) | OK |
| Windows, doors, and roof windows | *1.6* | 1.24 | Rear (1.4) | OK |
| Rooflights | *2.2* | N/A | N/A | **N/A** |

| 2b Envelope elements (better than typically expected values are flagged with a subsequent (!)) | | |
|---|---|---|
| **Name** | **Net area [$m^2$]** | **U-Value [W/$m^2$K]** |
| Exposed wall: Brick | 109.658 | 0.21 |
| Exposed wall: Wl - Dormer | 5.838 | 0.26 |
| Exposed wall: Wl - Stud | 0.762 | 0.28 |
| Exposed wall: Wl - Stud Ashlar | 18.538 | 0.108 **(!)** |
| Party wall: Party Wall | 64.968 | 0 **(!)** |
| Ground floor: Flr - Ground | 56.92 | 0.16 |
| Exposed roof: Rf - Ins Joist | 25.519 | 0.09 **(!)** |
| Exposed roof: Rf - Ins Rafter | 11.193 | 0.15 |
| Exposed roof: Joist over Bay | 2.43 | 0.09 **(!)** |
| Exposed roof: Flat over Family/Balcony | 7.7 | 0.1 **(!)** |
| Exposed roof: Rf - Ashlar behind Stud | 8.433 | 0.108 **(!)** |
| Exposed roof: Dormer Joist Roof | 3.77 | 0.14 |

| 2c Openings (better than typically expected values are flagged with a subsequent (!)) | | | | |
|---|---|---|---|---|
| **Name** | **Area [$m^2$]** | **Orientation** | **Frame factor** | **U-Value [W/$m^2$K]** |
| Front, Door (1) | 2.058 | West | 0.7 | 1.2 |
| L Side, Door (2) | 1.911 | North | 0.7 | 1.2 |
| Front, Windows (1) | 6.282 | West | 1.0 | 1.3 |
| L Side, Windows (2) | 3.1 | North | 1.0 | 1.3 |
| Rear, Windows (3) | 6.478 | East | 1.0 | 1.3 |

| Name | Area [$m^2$] | Orientation | Frame factor | U-Value [$W/m^2K$] |
|---|---|---|---|---|
| Front, Windows (4) | 1.53 | West | 1.0 | 1.3 |
| Rear, Windows (5) | 1.53 | East | | 0 **(!)** |
| Rear, Windows (6) | 4.976 | East | 1.0 | 1.4 |
| Rear, RoofLights (1) | 1.5 | Horizontal | 0.7 | 1.3 |

**2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))**

Building part **1 - Main Dwelling**: Thermal bridging calculated from linear thermal transmittances for each junction

| Main element | Junction detail | Source | Psi value [W/mK] | Drawing / reference |
|---|---|---|---|---|
| External wall | E2: Other lintels (including other steel lintels) | Calculated by person with suitable expertise | 0.024 **(!)** | Not Provided |
| External wall | E4: Jamb | Calculated by person with suitable expertise | 0.008 **(!)** | Not Provided |
| External wall | E3: Sill | Calculated by person with suitable expertise | 0.029 **(!)** | Not Provided |
| External wall | E5: Ground floor (normal) | Calculated by person with suitable expertise | 0.109 | Not Provided |
| External wall | E6: Intermediate floor within a dwelling | Calculated by person with suitable expertise | 0.061 | Not Provided |
| External wall | E10: Eaves (insulation at ceiling level) | Calculated by person with suitable expertise | 0.021 **(!)** | Not Provided |
| External wall | E11: Eaves (insulation at rafter level) | Calculated by person with suitable expertise | 0.004 **(!)** | Not Provided |
| External wall | E12: Gable (insulation at ceiling level) | Calculated by person with suitable expertise | 0.032 **(!)** | Not Provided |
| External wall | E13: Gable (insulation at rafter level) | Calculated by person with suitable expertise | 0.053 | Not Provided |
| External wall | E16: Corner (normal) | Calculated by person with suitable expertise | 0.013 **(!)** | Not Provided |
| External wall | E17: Corner (inverted - internal area greater than external area) | Calculated by person with suitable expertise | -0.115 | Not Provided |
| External wall | E18: Party wall between dwellings | Calculated by person with suitable expertise | 0.011 **(!)** | Not Provided |
| External wall | E24: Eaves (insulation at ceiling level - inverted) | SAP table default | 0.15 | Not Provided |
| Party wall | P1: Ground floor | Calculated by person with suitable expertise | 0.086 | Not Provided |
| Party wall | P3: Intermediate floor between dwellings (in blocks of flats) | SAP table default | 0 **(!)** | Not Provided |
| Party wall | P4: Roof (insulation at ceiling level) | Calculated by person with suitable expertise | 0.038 **(!)** | Not Provided |
| Party wall | P5: Roof (insulation at rafter level) | Calculated by person with suitable expertise | 0.085 | Not Provided |
| Roof | R1: Head of roof window | Calculated by person with suitable expertise | 0.058 | Not Provided |
| Roof | R2: Sill of roof window | Calculated by person with suitable expertise | 0.049 | Not Provided |
| Roof | R3: Jamb of roof window | Calculated by person with suitable expertise | 0.058 | Not Provided |
| Roof | R6: Flat ceiling | Calculated by person with suitable expertise | -0.059 | Not Provided |
| Roof | R7: Flat ceiling (inverted) | Calculated by person with suitable expertise | -0.046 | Not Provided |
| Roof | R10: All other roof or room-in-roof junctions | SAP table default | 0.32 | Not Provided |
| External wall | E15: Flat roof with parapet | Calculated by person with suitable expertise | 0 **(!)** | Not Provided |

**3 Air permeability (better than typically expected values are flagged with a subsequent (!))**

| | | |
|---|---|---|
| *Maximum permitted air permeability at 50Pa* | *8 $m^3/hm^2$* | |
| Dwelling air permeability at 50Pa | 4 $m^3/hm^2$, Design value | OK |
| Air permeability test certificate reference | | |

| 4 Space heating | | |
|---|---|---|
| **Main heating system 1**: Boiler with radiators or underfloor heating - Electricity | | |
| Efficiency | | |
| Emitter type | Radiators | |
| Flow temperature | 45°C | |
| System type | HeatPumpsWet | |
| Manufacturer | Daikin Altherma | |
| Model | EDLA06EV3 | |
| Commissioning | | |
| **Secondary heating system**: N/A | | |
| Fuel | N/A | |
| Efficiency | N/A | |
| Commissioning | | |

| 5 Hot water | | |
|---|---|---|
| **Cylinder/store** - type: Cylinder | | |
| Capacity | 210 litres | |
| Declared heat loss | 1.5 kWh/day | |
| Primary pipework insulated | Yes | |
| Manufacturer | | |
| Model | | |
| Commissioning | | |
| **Waste water heat recovery system 1** - type: N/A | | |
| Efficiency | | |
| Manufacturer | | |
| Model | | |

| 6 Controls | | |
|---|---|---|
| **Main heating 1** - type: Time and temperature zone control by arrangement of plumbing and electrical services | | |
| Function | | |
| Ecodesign class | | |
| Manufacturer | | |
| Model | | |
| **Water heating** - type: Cylinder thermostat and HW separately timed | | |
| Manufacturer | | |
| Model | | |

| 7 Lighting | | |
|---|---|---|
| *Minimum permitted light source efficacy* | *75 lm/W* | |
| Lowest light source efficacy | 101.25 lm/W | **OK** |
| External lights control | N/A | |

| 8 Mechanical ventilation | | |
|---|---|---|
| **System type:** Decentralised mechanical extract | | |
| *Maximum permitted specific fan power* | *0.7 W/(l/s)* | |
| Specific fan power | 0.01 W/(l/s) | **OK** |
| *Minimum permitted heat recovery efficiency* | *N/A* | |
| Heat recovery efficiency | N/A | **N/A** |
| Manufacturer/Model | 0 | |
| Commissioning | | |

| 9 Local generation | |
|---|---|
| Technology type: **Photovoltaic system (1)** | |
| Peak power | 1.215 kWp |
| Orientation | East |
| Pitch | 45° |
| Overshading | None or very little |
| Manufacturer | Not Provided |
| MCS certificate | |

| Technology type: **Photovoltaic system (2)** | |
|---|---|
| Peak power | 1.215 kWp |
| Orientation | West |
| Pitch | 45° |
| Overshading | None or very little |
| Manufacturer | Not Provided |
| MCS certificate | |

## 10 Heat networks

N/A

## 11 Supporting documentary evidence

N/A

## 12 Declarations

### a. Assessor Declaration

This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.

| | |
|---|---|
| Signed: | Assessor ID: KAZN000007 |
| Name: Michael Juckes | Date: 03 Mar 2025 |

### b. Client Declaration

N/A