# 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:** Fri 28 Feb 2025 16:40:42

| Project Information | | | |
|---|---|---|---|
| Assessed By | Scott Binstead | Building Type | House, Detached |
| OCDEA Registration | KAZN000006 | Assessment Date | 2025-02-28 |

| Dwelling Details | | | |
|---|---|---|---|
| Assessment Type | As built | Total Floor Area | 85 $m^2$ |
| Site Reference | 001 Orchard Cottage | Plot Reference | 001 Orchard Cottage |
| Address | Orchard Cottage, Pipers End, Hertford, SG14 2PB | | |

| Client Details | |
|---|---|
| Name | John Milne |
| Company | John Milne |
| Address | The Elms, Pipers End, HERTFORD, SG14 2PB |

**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* | *9.32 $kgCO_2/m^2$* | |
| Dwelling carbon dioxide emission rate | 0.53 $kgCO_2/m^2$ | OK |
| **1b Target primary energy rate and dwelling primary energy** | | |
| *Target primary energy* | *50.08 $kWh_{PE}/m^2$* | |
| Dwelling primary energy | 17.91 $kWh_{PE}/m^2$ | OK |
| **1c Target fabric energy efficiency and dwelling fabric energy efficiency** | | |
| *Target fabric energy efficiency* | *42.24 $kWh/m^2$* | |
| Dwelling fabric energy efficiency | 41.82 $kWh/m^2$ | OK |

| 2a Fabric U-values | | | | |
|---|---|---|---|---|
| **Element** | ***Maximum permitted average U-Value [$W/m^2K$]*** | **Dwelling average U-Value [$W/m^2K$]** | **Element with highest individual U-Value** | |
| External walls | *0.26* | 0.11 | Clad (0.11) | OK |
| Party walls | *0.2* | N/A | N/A | **N/A** |
| Curtain walls | *1.6* | N/A | N/A | **N/A** |
| Floors | *0.18* | 0.15 | Flr - Ground (0.15) | OK |
| Roofs | *0.16* | 0.1 | Rf - Flat Roof (0.1) | OK |
| Windows, doors, and roof windows | *1.6* | 1.13 | Front (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 [$W/m^2K$]** |
| Exposed wall: Clad | 81.028 | 0.11 **(!)** |
| Ground floor: Flr - Ground | 85.293 | 0.15 |
| Exposed roof: Rf - Flat Roof | 85.293 | 0.1 **(!)** |

| 2c Openings (better than typically expected values are flagged with a subsequent (!)) | | | | |
|---|---|---|---|---|
| **Name** | **Area [$m^2$]** | **Orientation** | **Frame factor** | **U-Value [$W/m^2K$]** |
| Front, Door (1) | 2.352 | North | 0.7 | 1.4 |
| Front, Windows (1) | 3.048 | North | 0.8 | 1 **(!)** |
| L Side, Windows (2) | 2.34 | East | 0.8 | 1 **(!)** |
| R Side, Windows (3) | 1.98 | West | 0.8 | 1 **(!)** |
| Rear, Windows (4) | 1.8 | South | 0.8 | 1 **(!)** |
| Rear, Windows (5) | 7.2 | South | 0.7 | 1.2 |

| 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 | 0.085 | Not Provided |

| Main element | Junction detail | Source | Psi value [W/mK] | Drawing / reference |
|---|---|---|---|---|
| External wall | E4: Jamb | SAP table default | 0.1 | Not Provided |
| External wall | E3: Sill | SAP table default | 0.1 | Not Provided |
| External wall | E5: Ground floor (normal) | SAP table default | 0.32 | Not Provided |
| External wall | E14: Flat roof | Calculated by person with suitable expertise | 0.057 | Not Provided |
| External wall | E16: Corner (normal) | SAP table default | 0.18 | 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 | 2.86 $m^3/hm^2$, Measured value **(!)** | OK |
| Air permeability test certificate reference | | |

| 4 Space heating | |
|---|---|
| **Main heating system 1**: Heat pump with radiators or underfloor heating - Electricity | |
| Efficiency | 264.309269504394% |
| Emitter type | Radiators |
| Flow temperature | 45°C |
| System type | HeatPumpsWet |
| Manufacturer | Vaillant |
| Model | aroTHERM plus 5kW & AI |
| Commissioning | |
| **Secondary heating system**: N/A | |
| Fuel | N/A |
| Efficiency | N/A |
| Commissioning | |

| 5 Hot water | |
|---|---|
| **Cylinder/store** - type: Cylinder | |
| Capacity | 191 litres |
| Declared heat loss | 1.22 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: Programmer, room thermostat and TRVs | |
| 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:** Balanced whole-house mechanical ventilation with heat recovery | | |
| *Maximum permitted specific fan power* | *1.5 W/(l/s)* | |
| Specific fan power | 0.68 W/(l/s) | OK |
| *Minimum permitted heat recovery efficiency* | *73%* | |
| Heat recovery efficiency | 91% | OK |
| Manufacturer/Model | Zehnder Group UK Ltd ComfoAir Flex 250 | |
| Commissioning | | |

| 9 Local generation | |
|---|---|
| Technology type: **Photovoltaic system (1)** | |
| Peak power | 1.6 kWp |
| Orientation | East |
| Pitch | Horizontal |
| Overshading | None or very little |
| Manufacturer | Not Provided |
| MCS certificate | |
| Technology type: **Photovoltaic system (2)** | |
| Peak power | 1.6 kWp |
| Orientation | West |
| Pitch | Horizontal |
| Overshading | None or very little |
| Manufacturer | Not Provided |
| MCS certificate | |

| 10 Heat networks |
|---|
| N/A |

| 11 Supporting documentary evidence | |
|---|---|
| Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any calculations undertaken, manufacturer declarations made, and tests performed as reflected in this "As built" BREL Compliance Report are correct.<br>11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required.<br>11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support the calculated values claimed in 2a to 2d. | |

| 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 and construction information submitted for this dwelling for the purpose of carrying out the assessment, and that the supporting documentary evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as amended) has been reviewed in the course of preparing this BREL Compliance Report. | |
| Signed:<br><br>Name: Scott Binstead | Assessor ID: KAZN000006<br><br>Date: 28 Feb 2025 |
| **b. Client Declaration** | |
| This declaration by the client is confirmation that the dwelling has been constructed and completed according to the specifications set out in this BREL Compliance Report, and that photographic evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling. | |
| Signed:<br><br>Name: John Milne | Organisation: John Milne<br><br>Date: |