# 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 31 Jan 2025 16:14:53

| Project Information | | | |
|---|---|---|---|
| Assessed By | Connor Campbell | Building Type | House, Detached |
| OCDEA Registration | KAZN000009 | Assessment Date | 2025-01-31 |

| Dwelling Details | | | |
|---|---|---|---|
| Assessment Type | As designed | Total Floor Area | 136 $m^2$ |
| Site Reference | 087 - Willow | Plot Reference | 087 - Willow |
| Address | Address Line 1, ....., CW1 4QW | | |

| Client Details | |
|---|---|
| Name | Not Given |
| Company | Not Given |
| Address | Not Provided, Not Provided, AL9 5HZ |

**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 | Mains gas | |
| *Target carbon dioxide emission rate* | *9.95 kg$CO_2$/$m^2$* | |
| Dwelling carbon dioxide emission rate | 9.73 kg$CO_2$/$m^2$ | OK |
| **1b Target primary energy rate and dwelling primary energy** | | |
| *Target primary energy* | *51.91 kWh$_{PE}$/$m^2$* | |
| Dwelling primary energy | 51.60 kWh$_{PE}$/$m^2$ | OK |
| **1c Target fabric energy efficiency and dwelling fabric energy efficiency** | | |
| *Target fabric energy efficiency* | *38.07 kWh/$m^2$* | |
| Dwelling fabric energy efficiency | 37.56 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 - Dormer (0.26) | OK |
| Party walls | *0.2* | N/A | N/A | **N/A** |
| Curtain walls | *1.6* | N/A | N/A | **N/A** |
| Floors | *0.18* | 0.12 | Flr - Ground (0.12) | OK |
| Roofs | *0.16* | 0.12 | Rf - Ins Rafter (0.16) | OK |
| Windows, doors, and roof windows | *1.6* | 1.18 | 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: Wl - Brick | 143.044 | 0.21 |
| Exposed wall: Wl - Dormer | 5.096 | 0.26 |
| Exposed wall: Wl - Stud Ashlar | 15.218 | 0.1152 **(!)** |
| Ground floor: Flr - Ground | 51.121 | 0.12 |
| Exposed roof: Rf - Ins Joist | 19.202 | 0.09 **(!)** |
| Exposed roof: Rf - Ins Rafter | 17.55 | 0.16 |
| Exposed roof: Rf - Flat Bay | 1.482 | 0.16 |
| Exposed roof: Rf - Flat Dormer | 3.536 | 0.16 |
| Exposed roof: Rf - Ashlar behind Stud | 14.767 | 0.1152 |

| 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) | 2.148 | North West | 0.7 | 1 **(!)** |
| Front, Windows (1) | 7.273 | North West | 1.0 | 1.3 |
| L Side, Windows (2) | 2.252 | South West | 1.0 | 1.3 |
| R Side, Windows (3) | 2.252 | North East | | 0 **(!)** |
| Rear, Windows (4) | 6.918 | South East | 1.0 | 1.3 |
| Front, Windows (5) | 2.259 | North West | 1.0 | 1.3 |
| Rear, Windows (6) | 3.853 | South East | 1.0 | 1.4 |

| 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) | Government-approved scheme | 0.051 | Not Provided |
| External wall | E4: Jamb | Government-approved scheme | 0.033 **(!)** | Not Provided |
| External wall | E3: Sill | Government-approved scheme | 0.036 **(!)** | Not Provided |
| External wall | E5: Ground floor (normal) | Government-approved scheme | 0.091 | Not Provided |
| External wall | E6: Intermediate floor within a dwelling | Government-approved scheme | 0.052 | Not Provided |
| External wall | E10: Eaves (insulation at ceiling level) | Government-approved scheme | 0.068 | Not Provided |
| External wall | E12: Gable (insulation at ceiling level) | Government-approved scheme | 0.052 | Not Provided |
| External wall | E13: Gable (insulation at rafter level) | Government-approved scheme | 0.031 **(!)** | Not Provided |
| External wall | E16: Corner (normal) | Government-approved scheme | 0.058 | Not Provided |
| External wall | E17: Corner (inverted - internal area greater than external area) | SAP table default | -0.039 **(!)** | Not Provided |
| External wall | E24: Eaves (insulation at ceiling level - inverted) | Government-approved scheme | 0.107 | Not Provided |
| Roof | R2: Sill of roof window | Government-approved scheme | 0.049 | Not Provided |
| Roof | R3: Jamb of roof window | Government-approved scheme | 0.058 | Not Provided |
| Roof | R6: Flat ceiling | SAP table default | -0.001 **(!)** | Not Provided |
| Roof | R7: Flat ceiling (inverted) | Government-approved scheme | 0.021 **(!)** | Not Provided |
| Roof | R10: All other roof or room-in-roof junctions | Government-approved scheme | 0.029 **(!)** | 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 - Mains gas | |
| Efficiency | 89% |
| Emitter type | Radiators |
| Flow temperature | 55°C |
| System type | Gas1998OrLater |
| Manufacturer | |
| Model | |
| Commissioning | |
| **Secondary heating system**: N/A | |
| Fuel | N/A |
| Efficiency | N/A |
| Commissioning | |

| 5 Hot water | |
|---|---|
| **Cylinder/store** - type: Cylinder | |
| Capacity | N/A |
| Declared heat loss | 1.4 kWh/day |
| Primary pipework insulated | N/A |
| Manufacturer | |
| Model | |
| Commissioning | |
| **Waste water heat recovery system 1** - type: Instantaneous | |
| Efficiency | 1% |
| Manufacturer | Q-Blue B.V. |
| Model | QB1-21 |

| 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 | 1% | **N/A** |
| Manufacturer/Model | 0 | |
| Commissioning | | |

| 9 Local generation | |
|---|---|
| Technology type: **Photovoltaic system (1)** | |
| Peak power | 1.62 kWp |
| Orientation | South East |
| 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:<br><br>Name: Connor Campbell | Assessor ID: KAZN000009<br><br>Date: 31 Jan 2025 |
| **b. Client Declaration** | |
| N/A | |