

# Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Wed 12 Mar 2025 11:29:25

| Project Information |                  |                 |                 |
|---------------------|------------------|-----------------|-----------------|
| Assessed By         | Sebastian Ingham | Building Type   | House, Detached |
| OCDEA Registration  | EES/022597       | Assessment Date | 2025-03-12      |

| Dwelling Details |                               |                  |                   |
|------------------|-------------------------------|------------------|-------------------|
| Assessment Type  | As designed                   | Total Floor Area | 96 m <sup>2</sup> |
| Site Reference   | Plot 14                       | Plot Reference   | As Designed       |
| Address          | Plot 14 Lowans Hill, Redditch |                  |                   |

| Client Details |         |
|----------------|---------|
| Name           | -       |
| Company        | -       |
| Address        | -, -, - |

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                | 12.14 kgCO <sub>2</sub> /m <sup>2</sup> |    |
| Dwelling carbon dioxide emission rate              | 12.06 kgCO <sub>2</sub> /m <sup>2</sup> | OK |

| 1b Target primary energy rate and dwelling primary energy |                                         |    |
|-----------------------------------------------------------|-----------------------------------------|----|
| Target primary energy                                     | 63.55 kWh <sub>PE</sub> /m <sup>2</sup> |    |
| Dwelling primary energy                                   | 63.15 kWh <sub>PE</sub> /m <sup>2</sup> | OK |

| 1c Target fabric energy efficiency and dwelling fabric energy efficiency |                         |    |
|--------------------------------------------------------------------------|-------------------------|----|
| Target fabric energy efficiency                                          | 42.5 kWh/m <sup>2</sup> |    |
| Dwelling fabric energy efficiency                                        | 40.0 kWh/m <sup>2</sup> | OK |

| 2a Fabric U-values               |                                                        |                                               |                                         |     |
|----------------------------------|--------------------------------------------------------|-----------------------------------------------|-----------------------------------------|-----|
| Element                          | Maximum permitted average U-Value [W/m <sup>2</sup> K] | Dwelling average U-Value [W/m <sup>2</sup> K] | Element with highest individual U-Value |     |
| External walls                   | 0.26                                                   | 0.18                                          | Walls (1) (0.18)                        | OK  |
| Party walls                      | 0.2                                                    | N/A                                           | N/A                                     | N/A |
| Curtain walls                    | 1.6                                                    | N/A                                           | N/A                                     | N/A |
| Floors                           | 0.18                                                   | 0.11                                          | Heat Loss Floor - over entranc (0.23)   | OK  |
| Roofs                            | 0.16                                                   | 0.11                                          | Roof (1) (0.11)                         | OK  |
| Windows, doors, and roof windows | 1.6                                                    | 1.2                                           | NW windows (1.2)                        | 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 <sup>2</sup> ] | U-Value [W/m <sup>2</sup> K] |
| Exposed wall: Walls (1)                                                                        | 133.23                     | 0.18                         |
| Ground floor: Heat Loss Floor - ground, Heat Loss Floor - ground                               | 46.9                       | 0.11                         |
| Upper floor: Heat Loss Floor - over entranc, Heat Loss Floor - over entranc                    | 1.7                        | 0.23                         |
| Exposed roof: Roof (1)                                                                         | 48.599998474121094         | 0.11                         |

| 2c Openings (better than typically expected values are flagged with a subsequent (!)) |                        |             |              |                              |
|---------------------------------------------------------------------------------------|------------------------|-------------|--------------|------------------------------|
| Name                                                                                  | Area [m <sup>2</sup> ] | Orientation | Frame factor | U-Value [W/m <sup>2</sup> K] |
| NW windows, Windows                                                                   | 2.25                   | North West  | 0.7          | 1.2                          |
| NW windows, Windows                                                                   | 1.21                   | North West  | 0.7          | 1.2                          |
| NW windows, Windows                                                                   | 3.3                    | North West  | 0.7          | 1.2                          |
| NW door, Doors                                                                        | 1.89                   | North West  | N/A          | 1.2                          |
| SE windows, Windows                                                                   | 2.25                   | South East  | 0.7          | 1.2                          |
| SE windows, Windows                                                                   | 1.21                   | South East  | 0.7          | 1.2                          |
| SE windows, Windows                                                                   | 4.84                   | South East  | 0.7          | 1.2                          |
| SW windows, Windows                                                                   | 0.6                    | South West  | 0.7          | 1.2                          |
| SW windows, Windows                                                                   | 1                      | South West  | 0.7          | 1.2                          |

| 2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))               |                                                                   |                                              |                  |                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------|------------------|---------------------|
| Building part 1: 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 | 0.084            |                     |
| External wall                                                                                               | E3: Sill                                                          | Calculated by person with suitable expertise | 0.034 (!)        |                     |
| External wall                                                                                               | E4: Jamb                                                          | Calculated by person with suitable expertise | 0.043            |                     |
| External wall                                                                                               | E5: Ground floor (normal)                                         | Calculated by person with suitable expertise | 0.021 (!)        |                     |
| External wall                                                                                               | E6: Intermediate floor within a dwelling                          | Calculated by person with suitable expertise | 0.08             |                     |
| External wall                                                                                               | E10: Eaves (insulation at ceiling level)                          | Calculated by person with suitable expertise | 0.044            |                     |
| External wall                                                                                               | E12: Gable (insulation at ceiling level)                          | Calculated by person with suitable expertise | 0.051            |                     |
| External wall                                                                                               | E16: Corner (normal)                                              | Calculated by person with suitable expertise | 0.03 (!)         |                     |
| External wall                                                                                               | E17: Corner (inverted - internal area greater than external area) | Calculated by person with suitable expertise | -0.015 (!)       |                     |
| External wall                                                                                               | E20: Exposed floor (normal)                                       | SAP table default                            | 0.32             |                     |
| External wall                                                                                               | E21: Exposed floor (inverted)                                     | SAP table default                            | 0.32             |                     |
| 3 Air permeability (better than typically expected values are flagged with a subsequent (!))                |                                                                   |                                              |                  |                     |
| Maximum permitted air permeability at 50Pa                                                                  |                                                                   | 8 m³/hm²                                     |                  |                     |
| Dwelling air permeability at 50Pa                                                                           |                                                                   | 5.01 m³/hm², Design value                    |                  | OK                  |
| Air permeability test certificate reference                                                                 |                                                                   |                                              |                  |                     |
| 4 Space heating                                                                                             |                                                                   |                                              |                  |                     |
| Main heating system 1: Boiler with radiators or underfloor heating - Mains gas                              |                                                                   |                                              |                  |                     |
| Efficiency                                                                                                  |                                                                   | 88.7%                                        |                  |                     |
| Emitter type                                                                                                |                                                                   | Radiators                                    |                  |                     |
| Flow temperature                                                                                            |                                                                   | 45°C                                         |                  |                     |
| System type                                                                                                 |                                                                   |                                              |                  |                     |
| Manufacturer                                                                                                |                                                                   | Bosch Thermotechnology Ltd                   |                  |                     |
| Model                                                                                                       |                                                                   | Greenstar 4000                               |                  |                     |
| Commissioning                                                                                               |                                                                   |                                              |                  |                     |
| Secondary heating system: N/A                                                                               |                                                                   |                                              |                  |                     |
| Fuel                                                                                                        |                                                                   | N/A                                          |                  |                     |
| Efficiency                                                                                                  |                                                                   | N/A                                          |                  |                     |
| Commissioning                                                                                               |                                                                   |                                              |                  |                     |
| 5 Hot water                                                                                                 |                                                                   |                                              |                  |                     |
| Cylinder/store - type: N/A                                                                                  |                                                                   |                                              |                  |                     |
| Capacity                                                                                                    |                                                                   | N/A                                          |                  |                     |
| Declared heat loss                                                                                          |                                                                   | N/A                                          |                  |                     |
| Primary pipework insulated                                                                                  |                                                                   | N/A                                          |                  |                     |
| 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: N/A                                                                                   |                                                                   |                                              |                  |                     |
| Manufacturer                                                                                                |                                                                   |                                              |                  |                     |
| Model                                                                                                       |                                                                   |                                              |                  |                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----|
| <b>7 Lighting</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |     |
| Minimum permitted light source efficacy                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 75 lm/W             |     |
| Lowest light source efficacy                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 80 lm/W             | OK  |
| External lights control                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A                 |     |
| <b>8 Mechanical ventilation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |     |
| <b>System type:</b> N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |     |
| Maximum permitted specific fan power                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                 |     |
| Specific fan power                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                 | N/A |
| Minimum permitted heat recovery efficiency                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                 |     |
| Heat recovery efficiency                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                 | N/A |
| Manufacturer/Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |     |
| Commissioning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |     |
| <b>9 Local generation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |     |
| Technology type: <b>Photovoltaic system (1)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |     |
| Peak power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2.68 kWp            |     |
| Orientation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | South West          |     |
| Pitch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30°                 |     |
| Overshading                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | None or very little |     |
| Manufacturer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |     |
| MCS certificate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |     |
| <b>10 Heat networks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |     |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |     |
| <b>11 Supporting documentary evidence</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |     |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |     |
| <b>12 Declarations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |     |
| <b>a. Assessor Declaration</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |     |
| 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:        |     |
| Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Date:               |     |
| <b>b. Client Declaration</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |     |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |     |

# Summary for Input Data

|                      |                                |                |            |
|----------------------|--------------------------------|----------------|------------|
| Property Reference   | Plot 14                        | Issued on Date | 12/03/2025 |
| Assessment Reference | As Designed                    | Prop Type Ref  | Type 05    |
| Property             | Plot 14, Lowans Hill, Redditch |                |            |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 93 A     | DER           | 12.06 | TER  | 12.14 |
| Environmental                      | 89 B     | % DER < TER   |       |      | 0.66  |
| CO <sub>2</sub> Emissions (t/year) | 1.07     | DFEE          | 39.97 | TFEE | 42.51 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 5.98  |
| % DPER < TPER                      | 0.62     | DPER          | 63.15 | TPER | 63.55 |

|                  |                      |             |           |
|------------------|----------------------|-------------|-----------|
| Assessor Details | Mr. Sebastian Ingham | Assessor ID | T245-0001 |
| Client           |                      |             |           |

## SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | Northwest           |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | House, Detached     |        |
| Which Floor                    | 0                   |        |
| 2.0 Number of Storeys          | 2                   |        |
| 3.0 Date Built                 | 2024                |        |
| 3.0 Property Age Band          | L                   |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 0.00                | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | No                  |        |
| Smart gas meter fitted         | No                  |        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 28.80 m             | 46.90 m <sup>2</sup> | 2.47 m                |
|                  |               | 28.80 m             | 48.60 m <sup>2</sup> | 2.80 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 39.30 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type         | Construction                                   | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|--------------|------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Timber Frame | Timber framed wall (one layer of plasterboard) | 0.18                         | 9.00                        | 151.78                      | 133.23                      | 0.00        | None    | 18.55    | Calculate Wall Area   |

| 9.2 Internal Walls | Description   | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|---------------|------------------------------|-----------------------------|------------------------|
|                    | Internal Wall | Plasterboard on timber frame | 9.00                        | 191.07                 |

| 10.0 External Roofs | Description   | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type    | Openings |
|---------------------|---------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|---------------------|----------|
|                     | External Roof | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 48.60                       | 48.60                       | None         | 0.00           | Calculate Wall Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 46.90                  |

| 11.0 Heat Loss Floors | Description                     | Type                   | Storey Index    | Construction                                    | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|---------------------------------|------------------------|-----------------|-------------------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Heat Loss Floor - ground        | Ground Floor - Solid   | Lowest occupied | Suspended concrete floor, carpeted              | 0.11                         | None         | 0.00           | 75.00                       | 46.90                  |
|                       | Heat Loss Floor - over entrance | Exposed Floor - Timber | +1              | Timber exposed floor, insulation between joists | 0.23                         | None         | 0.00           | 20.00                       | 1.70                   |

# Summary for Input Data

## 11.2 Internal Floors

| Description    | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|----------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor |              | Plasterboard ceiling, carpeted chipboard floor | 9.00           | 46.90     |

## 12.0 Opening Types

| Description | Data Source  | Type       | Glazing       | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------|--------------|------------|---------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows     | Manufacturer | Window     | Double glazed |             |              | 0.76    |            | 0.70         | 1.20            |
| Doors       | Manufacturer | Solid Door |               |             |              | 0.00    |            |              | 1.20            |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| NW windows | Windows      | External Wall | North West  | 6.76      | 0     |
| NW door    | Doors        | External Wall | North West  | 1.89      | 0     |
| SE windows | Windows      | External Wall | South East  | 8.30      | 0     |
| SW windows | Windows      | External Wall | South West  | 1.60      | 0     |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 12.10  | 0.08  | 0.08                | Yes      |
| E3 Sill                                                          | Independently assessed | 11.20  | 0.03  | 0.03                | Yes      |
| E4 Jamb                                                          | Independently assessed | 26.00  | 0.04  | 0.04                | Yes      |
| E5 Ground floor (normal)                                         | Independently assessed | 28.80  | 0.02  | 0.02                | Yes      |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 28.80  | 0.08  | 0.08                | Yes      |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 18.00  | 0.04  | 0.04                | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 10.80  | 0.05  | 0.05                | No       |
| E16 Corner (normal)                                              | Independently assessed | 23.55  | 0.03  | 0.03                | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 2.47   | -0.01 | -0.01               | No       |
| E20 Exposed floor (normal)                                       | Table K1 - Default     | 2.70   | 0.32  | 0.32                | No       |
| E21 Exposed floor (inverted)                                     | Table K1 - Default     | 2.70   | 0.32  | 0.32                | No       |

## 19.0 Mechanical Ventilation

| Mechanical Ventilation                |                                 |
|---------------------------------------|---------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="No"/> |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="4"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

|                           |                                          |                   |
|---------------------------|------------------------------------------|-------------------|
| Designed AP <sub>50</sub> | <input type="text" value="5.01"/>        | m³/(h.m²) @ 50 Pa |
| Property Tested?          | <input type="text" value="Yes"/>         |                   |
| Test Method               | <input type="text" value="Blower Door"/> |                   |

## 22.0 Lighting

| No Fixed Lighting   | <input type="text" value="No"/> |       |          |       |  |
|---------------------|---------------------------------|-------|----------|-------|--|
| Name                | Efficacy                        | Power | Capacity | Count |  |
| Low energy Lighting | 80.00                           | 10.00 | 800.00   | 30    |  |

## 24.0 Main Heating 1

|                    |                                       |   |
|--------------------|---------------------------------------|---|
| Database           | <input type="text" value="Database"/> |   |
| Percentage of Heat | <input type="text" value="100.00"/>   | % |
| Database Ref. No.  | <input type="text" value="18907"/>    |   |

# Summary for Input Data

|                        |                            |
|------------------------|----------------------------|
| Fuel Type              | Mains gas                  |
| SAP Code               | 104                        |
| Model Name             | Greenstar 4000             |
| Manufacturer           | Bosch Thermotechnology Ltd |
| Controls SAP Code      | 2110                       |
| PCDF Controls          | 0                          |
| Delayed Start Stat     | Yes                        |
| Burner Control         | Modulating                 |
| Boiler Compensator     | 0                          |
| HETAS approved System  | No                         |
| Flue Type              | Balanced                   |
| Fan Assisted Flue      | Yes                        |
| Is MHS Pumped          | Pump in heated space       |
| Heating Pump Age       | 2013 or later              |
| Heat Emitter           | Radiators                  |
| Flow Temperature       | Enter value                |
| Flow Temperature Value | 45.00                      |
| Boiler Interlock       | Yes                        |
| Combi boiler type      | Standard Combi             |

## 25.0 Main Heating 2

None

## 26.0 Heat Networks

None

## 27.0 Secondary Heating

None

## 28.0 Water Heating

|                                                  |                |
|--------------------------------------------------|----------------|
| Water Heating                                    | Main Heating 1 |
| SAP Code                                         | 901            |
| Flue Gas Heat Recovery System                    | No             |
| Waste Water Heat Recovery Instantaneous System 1 | No             |
| Waste Water Heat Recovery Instantaneous System 2 | No             |
| Waste Water Heat Recovery Storage System         | No             |
| Solar Panel                                      | No             |
| Water use <= 125 litres/person/day               | Yes            |
| Summer Immersion                                 | No             |
| Cold Water Source                                | From mains     |
| Bath Count                                       | 1              |
| Baths connected to WWHRS                         | 0              |
| Supplementary Immersion                          | No             |
| Immersion Only Heating Hot Water                 | No             |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| shower      | Combi boiler or unvented hot water system | 9.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

## 29.0 Hot Water Cylinder

|                          |      |
|--------------------------|------|
|                          | None |
| Cylinder Stat            | No   |
| Cylinder In Heated Space | No   |
| Independent Time Control | No   |
| Insulation Type          | None |
| Insulation Thickness     | 0    |

# Summary for Input Data

|                    |                                   |         |
|--------------------|-----------------------------------|---------|
| Cylinder Volume    | <input type="text" value="0.00"/> | L       |
| Loss               | <input type="text" value="0.00"/> | kWh/day |
| In Airing Cupboard | <input type="text" value="No"/>   |         |

|                           |                                                     |
|---------------------------|-----------------------------------------------------|
| <b>31.0 Thermal Store</b> | <input type="text" value="None"/>                   |
| Thermal Store Pipework    | <input type="text" value="within a single casing"/> |

|                               |                                           |
|-------------------------------|-------------------------------------------|
| <b>32.0 Photovoltaic Unit</b> | <input type="text" value="One Dwelling"/> |
| Export Capable Meter?         | <input type="text" value="Yes"/>          |
| Connected To Dwelling         | <input type="text" value="Yes"/>          |
| Diverter                      | <input type="text" value="No"/>           |
| Battery Capacity [kWh]        | <input type="text" value="0.00"/>         |

| PV Cells kWp | Orientation | Elevation | Overshading    | FGHRS | MCS Certificate | Overshading Factor | MCS Certificate Reference | Panel Manufacturer |
|--------------|-------------|-----------|----------------|-------|-----------------|--------------------|---------------------------|--------------------|
| 2.68         | South West  | 30°       | None Or Little | No    | No              | 1.00               |                           |                    |

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| <b>34.0 Small-scale Hydro</b>             | <input type="text" value="None"/>   |
| Electricity Generated                     | <input type="text" value="0.00"/>   |
| Apportioned                               | <input type="text" value="0.00"/>   |
| Connected to dwelling's electricity meter | <input type="text" value="Yes"/>    |
| Electricity Generation                    | <input type="text" value="Annual"/> |

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

**Recommendations**

**Lower cost measures**

None

**Further measures to achieve even higher standards**

None

# Predicted Energy Assessment

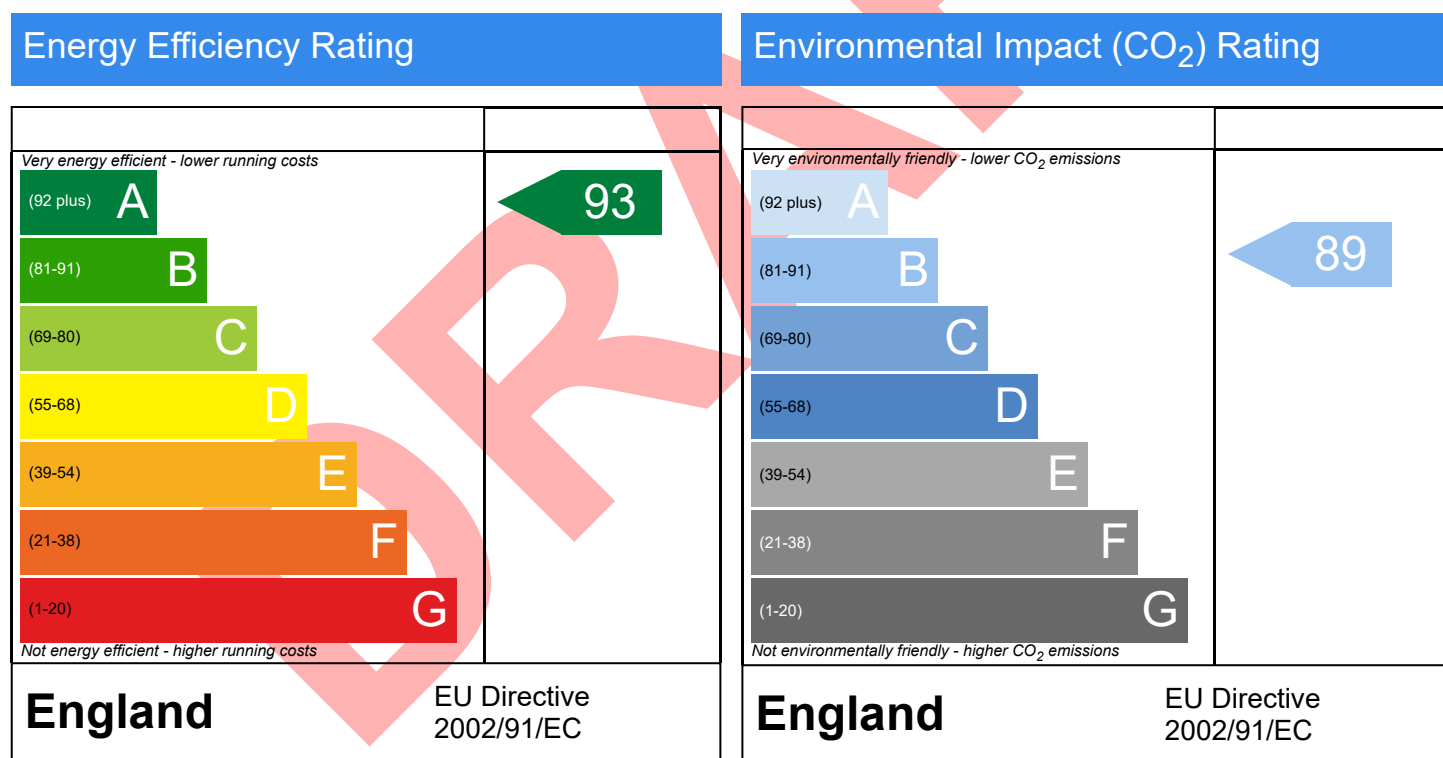


Plot 14, Lowans Hill, Redditch

Dwelling type: House, Detached  
Date of assessment: 12/03/2025  
Produced by: Sebastian Ingham  
Total floor area: 95.5 m<sup>2</sup>  
DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO<sub>2</sub>) emissions.



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO<sub>2</sub>) emissions. The higher the rating the less impact it has on the environment.