

# Building Regulations England Part L (BREL) Compliance Report

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

Date: Fri 10 Feb 2023 16:55:45

| Project Information |              |                 |                 |
|---------------------|--------------|-----------------|-----------------|
| Assessed By         | Karim Meraga | Building Type   | House, Detached |
| OCDEA Registration  | EES/025987   | Assessment Date | 2023-02-10      |

| Dwelling Details |                                    |                  |                    |
|------------------|------------------------------------|------------------|--------------------|
| Assessment Type  | As designed                        | Total Floor Area | 315 m <sup>2</sup> |
| Site Reference   | Q-09105                            | Plot Reference   | Design V1          |
| Address          | 12 Broadlands Road, London, N6 4AN |                  |                    |

| Client Details |                                    |
|----------------|------------------------------------|
| Name           | Matthew Gillen                     |
| Company        | Facit Homes                        |
| Address        | 12 Broadlands Road, London, N6 4AN |

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   | 8.3 kgCO <sub>2</sub> /m <sup>2</sup>     |
| Dwelling carbon dioxide emission rate | 3.08 kgCO <sub>2</sub> /m <sup>2</sup> OK |

## 1b Target primary energy rate and dwelling primary energy

|                         |                                            |
|-------------------------|--------------------------------------------|
| Target primary energy   | 45.74 kWh <sub>PE</sub> /m <sup>2</sup>    |
| Dwelling primary energy | 31.69 kWh <sub>PE</sub> /m <sup>2</sup> OK |

## 1c Target fabric energy efficiency and dwelling fabric energy efficiency

|                                   |                            |
|-----------------------------------|----------------------------|
| Target fabric energy efficiency   | 50.5 kWh/m <sup>2</sup>    |
| Dwelling fabric energy efficiency | 42.0 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                                                   | 0.15                                          | Walls (1) (0.15)                        | OK  |
| Party walls                      | 0.2                                                    | N/A                                           | N/A                                     | N/A |
| Curtain walls                    | 1.6                                                    | N/A                                           | N/A                                     | N/A |
| Floors                           | 0.18                                                   | 0.08                                          | Exposed Floor (0.15)                    | OK  |
| Roofs                            | 0.16                                                   | 0.16                                          | Roof (2) (0.16)                         | OK  |
| Windows, doors, and roof windows | 1.6                                                    | 0.85                                          | HR (1.3)                                | 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)                            | 206.84                     | 0.15                         |
| Ground floor: Heat Loss Floor 1, Heat Loss Floor 1 | 218.15                     | 0.08 (!)                     |
| Upper floor: Exposed Floor, Exposed Floor          | 3.69                       | 0.15                         |
| Exposed roof: Roof (1)                             | 103.19                     | 0.15                         |
| Exposed roof: Roof (2)                             | 126.94                     | 0.16                         |

## 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] |
|-------------------|------------------------|-------------|--------------|------------------------------|
| FW, Glazing       | 4.62                   | East        | 0.7          | 0.8 (!)                      |
| LSW, Glazing      | 7.96                   | South       | 0.7          | 0.8 (!)                      |
| RSR, Rooflights   | 3.96                   | North       | 0.7          | 1.2                          |
| HR, Roof Lanterns | 5.79                   | Horizontal  | 0.7          | 1.3                          |
| FGD, Glazing      | 11.28                  | East        | 0.7          | 0.8 (!)                      |
| LSGD, Glazing     | 17.29                  | South       | 0.7          | 0.8 (!)                      |
| RGD, Glazing      | 33.73                  | West        | 0.7          | 0.8 (!)                      |
| RSGD, Glazing     | 14.63                  | North       | 0.7          | 0.8 (!)                      |

## 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 | 0.121            | E2 - Facit Homes 3.08  |
| External wall | E3: Sill                                                          | Calculated by person with suitable expertise | 0.0934           | E3 - Facit Homes 3.09  |
| External wall | E4: Jamb                                                          | Calculated by person with suitable expertise | 0.0328 (!)       | E4 - Facit Homes 3.09  |
| Roof          | R1: Head of roof window                                           | SAP table default                            | 0.24             | R1 - Default           |
| Roof          | R2: Sill of roof window                                           | SAP table default                            | 0.24             | R2 - Default           |
| Roof          | R3: Jamb of roof window                                           | SAP table default                            | 0.24             | R3 - Default           |
| External wall | E5: Ground floor (normal)                                         | Calculated by person with suitable expertise | 0.0423           | E5 - Facit Homes 3.12  |
| External wall | E6: Intermediate floor within a dwelling                          | Calculated by person with suitable expertise | 0.0353 (!)       | E6 - Facit Homes 3.14  |
| External wall | E14: Flat roof                                                    | Calculated by person with suitable expertise | 0.0536           | E14 - Facit Homes 3.06 |
| External wall | E24: Eaves (insulation at ceiling level - inverted)               | SAP table default                            | 0.15             | E24 - Default          |
| External wall | E16: Corner (normal)                                              | Calculated by person with suitable expertise | 0.0179 (!)       | E16 - Facit Homes 3.23 |
| External wall | E17: Corner (inverted - internal area greater than external area) | Calculated by person with suitable expertise | 0.0329 (!)       | E17 - Facit Homes 3.24 |
| External wall | E20: Exposed floor (normal)                                       | SAP table default                            | 0.32             | E20 - Default          |
| External wall | E21: Exposed floor (inverted)                                     | SAP table default                            | 0.32             | E21 - Default          |
| External wall | E13: Gable (insulation at rafter level)                           | Calculated by person with suitable expertise | 0.0472           | E13 - Facit Homes 3.03 |
| External wall | E11: Eaves (insulation at rafter level)                           | Calculated by person with suitable expertise | 0.0284 (!)       | E11 - Facit Homes 3.04 |
| Roof          | R4: Ridge (vaulted ceiling)                                       | SAP table default                            | 0.12             | R4 - Default           |

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

|                                             |                                                  |    |
|---------------------------------------------|--------------------------------------------------|----|
| Maximum permitted air permeability at 50Pa  | 8 m <sup>3</sup> /hm <sup>2</sup>                |    |
| Dwelling air permeability at 50Pa           | 5 m <sup>3</sup> /hm <sup>2</sup> , Design value | OK |
| Air permeability test certificate reference |                                                  |    |

### 4 Space heating

|                                                                                            |                                 |  |
|--------------------------------------------------------------------------------------------|---------------------------------|--|
| <b>Main heating system 1:</b> Heat pump with radiators or underfloor heating - Electricity |                                 |  |
| Efficiency                                                                                 | 314.2%                          |  |
| Emitter type                                                                               | Underfloor                      |  |
| Flow temperature                                                                           | 55°C                            |  |
| System type                                                                                | Heat Pump                       |  |
| Manufacturer                                                                               | Mitsubishi Electric Europe B.V. |  |
| Model                                                                                      | Ecodan 11.2kW                   |  |
| Commissioning                                                                              |                                 |  |
| <b>Secondary heating system:</b> N/A                                                       |                                 |  |
| Fuel                                                                                       | N/A                             |  |
| Efficiency                                                                                 | N/A                             |  |
| Commissioning                                                                              |                                 |  |

### 5 Hot water

|                                                       |              |  |
|-------------------------------------------------------|--------------|--|
| <b>Cylinder/store</b> - type: Cylinder                |              |  |
| Capacity                                              | 150 litres   |  |
| Declared heat loss                                    | 1.89 kWh/day |  |
| Primary pipework insulated                            | Yes          |  |
| Manufacturer                                          |              |  |
| Model                                                 |              |  |
| Commissioning                                         |              |  |
| <b>Waste water heat recovery system 1</b> - type: N/A |              |  |
| Efficiency                                            |              |  |
| Manufacturer                                          |              |  |
| Model                                                 |              |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----|
| <b>6 Controls</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                         |     |
| <b>Main heating 1</b> - type: Time and temperature zone control by arrangement of plumbing and electrical services                                                                                                                                                                                                                                                                                                                                                                               |                         |     |
| Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |     |
| Ecodesign class                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         |     |
| Manufacturer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |     |
| Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |     |
| <b>Water heating</b> - type: Cylinder thermostat and HW separately timed                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |     |
| Manufacturer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |     |
| Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |     |
| <b>7 Lighting</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                         |     |
| Minimum permitted light source efficacy                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 75 lm/W                 |     |
| Lowest light source efficacy                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 114.28571428571429 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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |     |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         |     |
| <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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         |     |

# Predicted Energy Assessment



12, Broadlands Road, London, Greater London, N6 4AN

Dwelling type:

House, Detached

Date of assessment:

10/02/2023

Produced by:

Karim Meraga

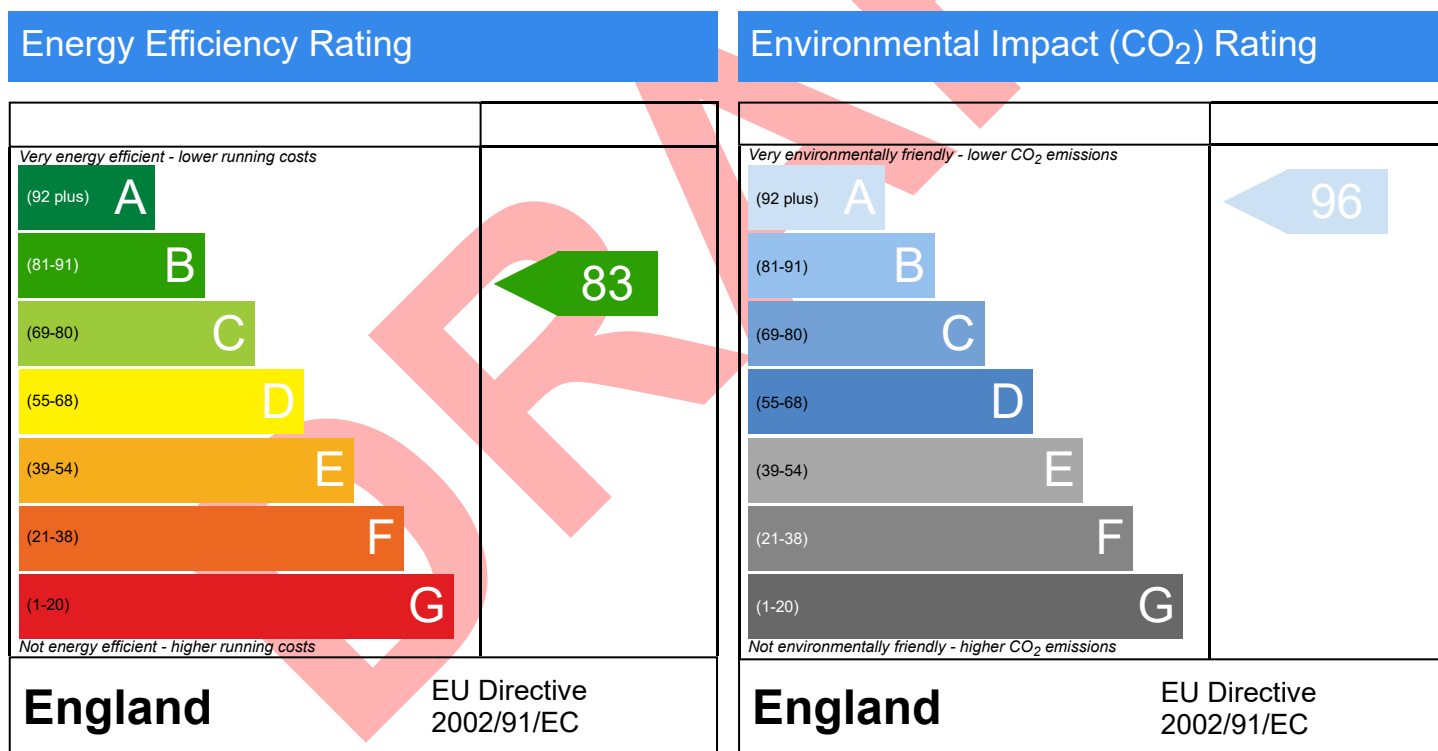
Total floor area:

314.63 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.

# Summary for Input Data



|                      |                                                     |                |            |
|----------------------|-----------------------------------------------------|----------------|------------|
| Property Reference   | Q-09105                                             | Issued on Date | 10/02/2023 |
| Assessment Reference | Design V1                                           | Prop Type Ref  | New Build  |
| Property             | 12, Broadlands Road, London, Greater London, N6 4AN |                |            |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 83 B     | DER           | 3.08  | TER  | 8.30  |
| Environmental                      | 96 A     | % DER < TER   |       |      | 62.89 |
| CO <sub>2</sub> Emissions (t/year) | 0.88     | DFEE          | 42.03 | TFEE | 50.51 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 16.79 |
| % DPER < TPER                      | 30.71    | DPER          | 31.69 | TPER | 45.74 |

|                  |                        |             |           |
|------------------|------------------------|-------------|-----------|
| Assessor Details | Mr. Karim Meraga       | Assessor ID | Q511-0001 |
| Client           | Q09105, Matthew Gillen |             |           |

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

|                            |                    |       |
|----------------------------|--------------------|-------|
| Orientation                | East               |       |
| Property Tenture           | ND                 |       |
| Transaction Type           | 6                  |       |
| Terrain Type               | Suburban           |       |
| 1.0 Property Type          | House, Detached    |       |
| 2.0 Number of Storeys      | 2                  |       |
| 3.0 Date Built             | 2023               |       |
| 4.0 Sheltered Sides        | 1                  |       |
| 5.0 Sunlight/Shade         | Average or unknown |       |
| 6.0 Thermal Mass Parameter | Enter TMP value    |       |
| Thermal Mass               | 250.00             | kJ/m² |

|                                |          |
|--------------------------------|----------|
| 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:   | 67.93 m             | 221.84 m <sup>2</sup> | 2.63 m                |
|                  |               | 40.65 m             | 92.79 m <sup>2</sup>  | 3.56 m                |

|                 |        |                |
|-----------------|--------|----------------|
| 8.0 Living Area | 126.04 | m <sup>2</sup> |
|-----------------|--------|----------------|

| 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 1 | Timber Frame | Other        | 0.15                         |                             | 296.35                       | 206.84                      | 0.00        | None    | 89.51    | Enter Gross Area      |

| Description     | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|------------------------------|-----------------------------|------------------------|
| Internal Wall 1 | Plasterboard on timber frame |                             | 556.94                 |

| 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 |
|--------------|----------------|-----------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|--------------|----------------|------------------|----------|
| Pitched Roof | External Slope | Plasterboard, insulated slope     | 0.15                         | 9.00                        | 107.15                       | 3.96                        | None         | 0.00           | Enter Gross Area | 3.96     |
| Flat Roof    | External Flat  | Plasterboard, insulated flat roof | 0.16                         | 9.00                        | 132.73                       | 5.79                        | None         | 0.00           | Enter Gross Area | 5.79     |

| Description        | Storey          | Construction                                   | Area (m <sup>2</sup> ) |
|--------------------|-----------------|------------------------------------------------|------------------------|
| Internal Ceiling 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 92.79                  |

| 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 1 | Ground Floor - Solid   | Lowest occupied | Other        | 0.08                         | None         | 0.00           | 0.00                        | 218.15                 |
| Exposed Floor     | Exposed Floor - Timber | +1              | Other        | 0.15                         | None         | 0.00           | 0.00                        | 3.69                   |

## 11.2 Internal Floors

# Summary for Input Data



| Description      | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 |              | Plasterboard ceiling, carpeted chipboard floor | 9.00           | 92.79     |

### 12.0 Opening Types

| Description   | Data Source  | Type        | Glazing       | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------|--------------|-------------|---------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazing       | Manufacturer | Window      | Triple glazed |             |              | 0.68    |            | 0.70         | 0.80            |
| Rooflights    | Manufacturer | Roof Window | Triple glazed |             |              | 0.68    |            | 0.70         | 1.20            |
| Roof Lanterns | Manufacturer | Roof Window | Triple glazed |             |              | 0.68    |            | 0.70         | 1.30            |

### 13.0 Openings

| Name | Opening Type  | Location        | Orientation | Area (m²) | Pitch |
|------|---------------|-----------------|-------------|-----------|-------|
| FW   | Glazing       | External Wall 1 | East        | 4.62      |       |
| LSW  | Glazing       | External Wall 1 | South       | 7.96      |       |
| RSR  | Rooflights    | Pitched Roof    | North       | 3.96      | 30    |
| HR   | Roof Lanterns | Flat Roof       | Horizontal  | 5.79      | 0     |
| FGD  | Glazing       | External Wall 1 | East        | 11.28     |       |
| LSGD | Glazing       | External Wall 1 | South       | 17.29     |       |
| RGD  | Glazing       | External Wall 1 | West        | 33.73     |       |
| RSGD | Glazing       | External Wall 1 | North       | 14.63     |       |

### 14.0 Conservatory

None

### 15.0 Draught Proofing

100

 %
  

### 16.0 Draught Lobby

No

### 17.0 Thermal Bridging

Calculate Bridges

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi  | Adjusted Reference:         | Imported |
|------------------------------------------------------------------|------------------------|--------|------|-----------------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 40.14  | 0.12 | 0.12 E2 - Facit Homes 3.08  | No       |
| E3 Sill                                                          | Independently assessed | 6.12   | 0.09 | 0.09 E3 - Facit Homes 3.09  | No       |
| E4 Jamb                                                          | Independently assessed | 92.52  | 0.03 | 0.03 E4 - Facit Homes 3.09  | No       |
| R1 Head of roof window                                           | Table K1 - Default     | 6.53   | 0.24 | 0.24 R1 - Default           | No       |
| R2 Sill of roof window                                           | Table K1 - Default     | 6.53   | 0.24 | 0.24 R2 - Default           | No       |
| R3 Jamb of roof window                                           | Table K1 - Default     | 15.06  | 0.24 | 0.24 R3 - Default           | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 67.93  | 0.04 | 0.04 E5 - Facit Homes 3.12  | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 16.70  | 0.04 | 0.04 E6 - Facit Homes 3.14  | No       |
| E14 Flat roof                                                    | Independently assessed | 45.88  | 0.05 | 0.05 E14 - Facit Homes 3.06 | No       |
| E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 20.32  | 0.15 | 0.15 E24 - Default          | No       |
| E16 Corner (normal)                                              | Independently assessed | 31.26  | 0.02 | 0.02 E16 - Facit Homes 3.23 | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 10.51  | 0.03 | 0.03 E17 - Facit Homes 3.24 | No       |
| E20 Exposed floor (normal)                                       | Table K1 - Default     | 3.63   | 0.32 | 0.32 E20 - Default          | No       |
| E21 Exposed floor (inverted)                                     | Table K1 - Default     | 5.36   | 0.32 | 0.32 E21 - Default          | No       |
| E13 Gable (insulation at rafter level)                           | Independently assessed | 15.99  | 0.05 | 0.05 E13 - Facit Homes 3.03 | No       |
| E11 Eaves (insulation at rafter level)                           | Independently assessed | 26.80  | 0.03 | 0.03 E11 - Facit Homes 3.04 | No       |
| R4 Ridge (vaulted ceiling)                                       | Table K1 - Default     | 13.40  | 0.12 | 0.12 R4 - Default           | No       |

Y-value

0.04

W/m²K

### 18.0 Pressure Testing

Yes

Designed AP<sub>50</sub>

5.00

m³/(h.m²) @ 50 Pa

Test Method

Blower Door

### 19.0 Mechanical Ventilation

#### Mechanical Ventilation

Mechanical Ventilation System Present

No

### 20.0 Fans, Open Fireplaces, Flues

### 21.0 Fixed Cooling System

No

### 22.0 Lighting

No Fixed Lighting

No

| Name                | Efficacy | Power | Capacity | Count |
|---------------------|----------|-------|----------|-------|
| Low energy Lighting | 114.29   | 7     | 800      | 100   |

### 24.0 Main Heating 1

Database

Percentage of Heat

100.00

%

Database Ref. No.

106399

Fuel Type

Electricity

In Winter

0.00

In Summer

0.00

Model Name

Ecodan 11.2kW

# Summary for Input Data



|                        |                                 |
|------------------------|---------------------------------|
| Manufacturer           | Mitsubishi Electric Europe B.V. |
| System Type            | Heat Pump                       |
| Controls SAP Code      | 2207                            |
| PCDF Controls          | 0                               |
| Is MHS Pumped          | Pump in heated space            |
| Heating Pump Age       | 2013 or later                   |
| Heat Emitter           | Underfloor                      |
| Underfloor Heating     | Yes - Pipes in Concrete         |
| Flow Temperature       | Enter value                     |
| Flow Temperature Value | 55.00                           |

25.0 Main Heating 2

26.0 Heat Networks

| Heat Source   | Fuel Type | Heating Use | Efficiency | Percentage Of Heat | Heat | Heat Power Ratio | Electrical | Fuel Factor | Efficiency type |
|---------------|-----------|-------------|------------|--------------------|------|------------------|------------|-------------|-----------------|
| Heat source 1 |           |             |            |                    |      |                  |            |             |                 |
| Heat source 2 |           |             |            |                    |      |                  |            |             |                 |
| Heat source 3 |           |             |            |                    |      |                  |            |             |                 |
| Heat source 4 |           |             |            |                    |      |                  |            |             |                 |
| Heat source 5 |           |             |            |                    |      |                  |            |             |                 |

## 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               | No             |
| Cold Water Source                                | From mains     |
| Bath Count                                       | 1              |
| Immersion Only Heating Hot Water                 | Yes            |

## 28.1 Showers

| Description | Shower Type | Flow Rate [l/min] | Rated Power [kW] | Connected | Connected To |
|-------------|-------------|-------------------|------------------|-----------|--------------|
|-------------|-------------|-------------------|------------------|-----------|--------------|

## 28.3 Waste Water Heat Recovery System

## 29.0 Hot Water Cylinder

|                          |                                  |
|--------------------------|----------------------------------|
| Hot Water Cylinder       |                                  |
| Cylinder Stat            | Yes                              |
| Cylinder In Heated Space | Yes                              |
| Independent Time Control | Yes                              |
| Insulation Type          | Measured Loss                    |
| Cylinder Volume          | 150.00 L                         |
| Loss                     | 1.89 kWh/day                     |
| Pipes insulation         | Fully insulated primary pipework |
| In Airing Cupboard       | No                               |

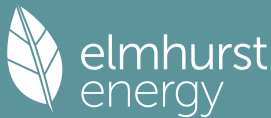
31.0 Thermal Store

34.0 Small-scale Hydro

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

Recommendations  
Lower cost measures  
None

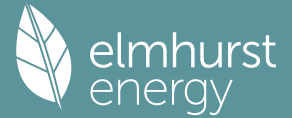
# Summary for Input Data



**Further measures to achieve even higher standards**

| Typical Cost    | Typical savings per year | Ratings after improvement |                      |
|-----------------|--------------------------|---------------------------|----------------------|
|                 |                          | SAP rating                | Environmental Impact |
| £3,500 - £5,500 | £198                     | B 84                      | A 97                 |
|                 |                          | B 86                      | A 97                 |
|                 |                          | 0                         | 0                    |

# Thermal Bridging



|                      |                                                     |                |                |
|----------------------|-----------------------------------------------------|----------------|----------------|
| Property Reference   | Q-09105                                             | Issued on Date | 10/02/2023     |
| Assessment Reference | Design V1                                           | Prop Type Ref  | Detached House |
| Property             | 12, Broadlands Road, London, Greater London, N6 4AN |                |                |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 83 B     | DER           | 3.08  | TER  | 8.30  |
| Environmental                      | 96 A     | % DER < TER   |       |      | 62.89 |
| CO <sub>2</sub> Emissions (t/year) | 0.88     | DFEE          | 42.03 | TFEE | 50.51 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 16.79 |
| % DPER < TPER                      | 30.71    | DPER          | 31.69 | TPER | 45.74 |

|                  |                        |             |           |
|------------------|------------------------|-------------|-----------|
| Assessor Details | Mr. Karim Meraga       | Assessor ID | Q511-0001 |
| Client           | Q09105, Matthew Gillen |             |           |

|               | Junction details                                                 | Source Type            | Psi (W/mK) | Length (m) | Result | Reference              |
|---------------|------------------------------------------------------------------|------------------------|------------|------------|--------|------------------------|
| External wall | E2 Other lintels (including other steel lintels)                 | Independently assessed | 0.121      | 40.14      | 4.86   | E2 - Facit Homes 3.08  |
| External wall | E3 Sill                                                          | Independently assessed | 0.093      | 6.12       | 0.57   | E3 - Facit Homes 3.09  |
| External wall | E4 Jamb                                                          | Independently assessed | 0.033      | 92.52      | 3.03   | E4 - Facit Homes 3.09  |
| External roof | R1 Head of roof window                                           | Table K1 - Default     | 0.240      | 6.53       | 1.57   | R1 - Default           |
| External roof | R2 Sill of roof window                                           | Table K1 - Default     | 0.240      | 6.53       | 1.57   | R2 - Default           |
| External roof | R3 Jamb of roof window                                           | Table K1 - Default     | 0.240      | 15.06      | 3.61   | R3 - Default           |
| External wall | E5 Ground floor (normal)                                         | Independently assessed | 0.042      | 67.93      | 2.87   | E5 - Facit Homes 3.12  |
| External wall | E6 Intermediate floor within a dwelling                          | Independently assessed | 0.035      | 16.70      | 0.59   | E6 - Facit Homes 3.14  |
| External wall | E14 Flat roof                                                    | Independently assessed | 0.054      | 45.88      | 2.46   | E14 - Facit Homes 3.06 |
| External wall | E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 0.150      | 20.32      | 3.05   | E24 - Default          |
| External wall | E16 Corner (normal)                                              | Independently assessed | 0.018      | 31.26      | 0.56   | E16 - Facit Homes 3.23 |
| External wall | E17 Corner (inverted – internal area greater than external area) | Independently assessed | 0.033      | 10.51      | 0.35   | E17 - Facit Homes 3.24 |
| External wall | E20 Exposed floor (normal)                                       | Table K1 - Default     | 0.320      | 3.63       | 1.16   | E20 - Default          |
| External wall | E21 Exposed floor (inverted)                                     | Table K1 - Default     | 0.320      | 5.36       | 1.72   | E21 - Default          |
| External wall | E13 Gable (insulation at rafter level)                           | Independently assessed | 0.047      | 15.99      | 0.75   | E13 - Facit Homes 3.03 |
| External wall | E11 Eaves (insulation at rafter level)                           | Independently assessed | 0.028      | 26.80      | 0.76   | E11 - Facit Homes 3.04 |
| External roof | R4 Ridge (vaulted ceiling)                                       | Table K1 - Default     | 0.120      | 13.40      | 1.61   | R4 - Default           |

Total: 31.09 W/mK:  
Y-Value: 0.04 W/m²K: