



SAP Report Submission for Building Regulations Compliance

Client: Dave Cottle Civil Engineering

Project: Plot 1, Land adjacent to Dolwar

Pentre Llanrhaeadr, Denbigh, Denbighshire, LL16 4NT

Contact: Stuart Hatherall

Blueprint Planning & Design Ltd stuart@blueprintarchitectural.com

Report Issue Date: 11/07/2022

EXCELLENCE IN ENERGY ASSESSMENT

PREDICTED ENERGY ASSESSMENT



Plot 1, Land adjacent to Dolwar, Pentre Llanrhaeadr, Denbigh, Denbighshire,

LL16 4NT

Dwelling type: House, End-Terrace

Date of assessment: 11/07/2022

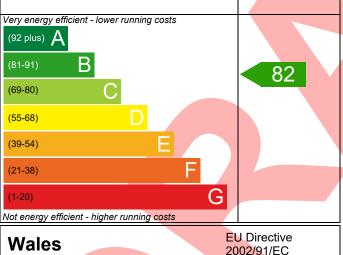
Produced by: Blueprint Planning & Design Ltd

Total floor area: 86.56 m²

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.

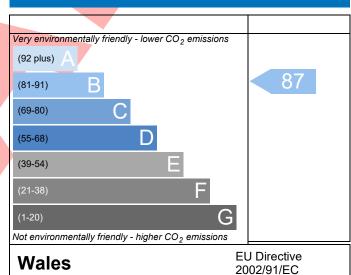
The energy performance has been assessed using the Government approved SAP2012 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



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.

Environmental Impact (CO₂) Rating



The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.



BUILDING REGULATION COMPLIANCE Calculation Type: New Build (As Designed)



| Property Reference | C102 Plot 1 | | | | Issued on Date | 11/07/2022 |
|----------------------------------|------------------------------|------------------|--|-----------------|-----------------------------------|------------|
| Assessment | As Designed | | Pr | op Type Ref | | |
| Reference | | | | | | |
| Property | Plot 1, Land adjacent to | Dolwar, Pentre | Llanrhaeadr, Den | bigh, Denbigh | shire, LL16 4NT | |
| SAP Rating | | 82 B | DER | 16.76 | TER | 17.97 |
| Environmental | | 87 B | % DER <ter< td=""><td></td><td>6.73</td><td></td></ter<> | | 6.73 | |
| CO ₂ Emissions (t/yea | r) | 1.19 | FEE | 57.50 | TFEE | N/A |
| General Requiremen | ts Compliance | Pass | % DFEE <tfee< td=""><td></td><td>N/A</td><td></td></tfee<> | | N/A | |
| Assessor Details | Mr. Stuart Hatherall, Bluepi | rint Planning & | Design Ltd, Tel: 01 | .978 356 500, | Assessor ID | N887-0001 |
| | tuart@blueprintarchitectu | | | | | |
| Client | Dave Cottle Civil Engineerin | g, Dave Cottle (| Civil Engineering | | | |
| SUMARY FOR INPUT | DATA FOR New Build (As D | esigned) | | | | |
| Criteria 1 – The DER m | nust be no greater than the | e TER | | | | |
| 1a TER and DER | | | | | | |
| Fuel for main heati | ing | Mains g | as | | | |
| Fuel factor | | 1.00 (ma | ains gas) | | | |
| Target Carbon Diox | kide Emission Rate (TER) | 17.97 | | | kgCO ₂ /m ² | |
| Dwelling Carbon D | ioxide Emission Rate (DER) | 16.76 | | | kgCO ₂ /m ² | Pass |
| | | -1.21 (-6 | 5.7%) | | kgCO ₂ /m ² | |
| Criteria 2 – Limits on o | design flexibility | | | | | |
| Building Fabric | | | | | | |
| 2 Fabric U-values | | | | | | |
| Element | Ave | erage | Н | ighest | | |
| External wa | II 0.2 | 0 (max. 0.21) | 0. | .21 (max. 0.70) |) | Pass |
| Party wall | 0.2 | 0 (max. 0.20) | - | | | Pass |
| Floor | 0.1 | 4 (max. 0.18) | 0. | .14 (max. 0.70) |) | Pass |
| Roof | 0.1 | 3 (max. 0.15) | 0. | .15 (max. 0.35) |) | Pass |
| Openings | 1.3 | 6 (max. 1.60) | 1. | .40 (max. 3.30) |) | Pass |
| 2a Thermal bridging | ıg | | | | | |
| Thermal bridging | ng calculated from linear th | ermal transmit | tances for each jui | nction | | |
| 3 Air permeability | | | | | | |
| Air permeabilit | y at 50 pascals | 6.00 (de | sign value) | | m³/(h.m²) @ 50 Pa | |
| Maximum | | 10.0 | | | m³/(h.m²) @ 50 Pa | Pass |
| Fixed Building Serv | vices | | | | | |
| 4 Heating efficience | Σ <u>Υ</u> | | | | | |
| Main heating sy | ystem | 1 | stem with radiato | rs or underflo | or - Mains gas | Pass |
| | | | m database | CD 4700:W 20 | O C N C | |
| | | Combi b | er Greenstar 4000 Joiler | J GK4/UUIW 3(| JUNG | |
| | | | :y: 89.3% SEDBUK2 | 2009 | | |
| | | | m: 88.0% | | | |
| Secondary heat | ing system | None | | | | |

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.



Regs Region: Wales Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.14r19

BUILDING REGULATION COMPLIANCE Calculation Type: New Build (As Designed)



| 5 Cylinder Insulation | | | |
|---|-----------------------------------|-------------------|------|
| Hot water storage | No cylinder | | |
| <u>6 Controls</u> | | | |
| Space heating controls | Programmer, TRVs and flow swit | ch | Pass |
| Hot water controls | No cylinder | | |
| Boiler interlock | Yes | | Pass |
| 7 Low energy lights | | | |
| Percentage of fixed lights with low-energy | 100 | % | |
| fittings | | | |
| Minimum | 75 | % | Pass |
| 8 Mechanical ventilation | | | |
| Not applicable | | | |
| Criterion 3 – Limiting overheating due to solar and | other gains | | |
| 9 Summertime temperature | | | |
| Overheating risk (Wales) | Not significant | | Pass |
| Based on: | | | |
| Overshading | Average | | |
| Windows facing North | 0.96 m ² , No overhang | | |
| Windows facing East | 6.52 m ² , No overhang | | |
| Windows facing West | 6.05 m ² , No overhang | | |
| Air change rate | 8.00 ach | | |
| Blinds/curtains | None | | |
| Criterion 4 – Building performance consistent with | DER | | |
| Party Walls | | | |
| Туре | U-value | | |
| Unfilled Cavity with Edge Sealing | 0.20 | W/m²K | Pass |
| Air-pressure testing | | | |
| 3 Air permeability | | | |
| Air permeability at 50 pascals | 6.00 (design value) | m³/(h.m²) @ 50 Pa | |
| Maximum | 10.0 | m³/(h.m²) @ 50 Pa | Pass |
| 10 Key features | | | |
| Door U-value | 1.20 | W/m²K | |
| Roof window U-value | 1.10 | W/m²K | |
| Photovoltaic array | 0.96 | kW | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |



RECOMMENDATIONS



| | Typical cost | Typical savings per year | Energy efficiency | Environmental impact | Result |
|---------------------|-------------------|-----------------------------|----------------------|----------------------|-------------------|
| Low energy lights | | | 0 | 0 | Already installed |
| Solar water heating | £4,000 - £6,000 | £26 | B 83 | B 89 | Recommended |
| Photovoltaic | | | 0 | 0 | Already installed |
| Wind turbine | £15,000 - £25,000 | £695 | A 104 | A 108 | Recommended |
| Totals | £19,000 - £31,000 | £721 | A 104 | A 108 | |





THERMAL BRIDGING

Calculation Type: New Build (As Designed)



| Property Reference | C102 Plot 1 | | | | Issued on Date 11/07/2022 | | | |
|---------------------------------|---|--|--|------------------|-------------------------------------|--|--|--|
| Assessment | As Designed | As Designed Prop Type Ref | | | | | | |
| Reference | | | | | | | | |
| Property | Plot 1, Land adjacent to D | Plot 1, Land adjacent to Dolwar, Pentre Llanrhaeadr, Denbigh, Denbighshire, LL16 4NT | | | | | | |
| SAP Rating | | 82 B | DER | 16.76 | 16.76 TER 17.97 | | | |
| Environmental | | 87 B | % DER <ter< th=""><th></th><th colspan="4">6.73</th></ter<> | | 6.73 | | | |
| CO ₂ Emissions (t/ye | ear) | 1.19 | FEE | 57.50 | 57.50 TFEE N/A | | | |
| General Requireme | ents Compliance | Pass | % DFEE <tfe< th=""><th>E</th><th colspan="4">N/A</th></tfe<> | E | N/A | | | |
| Assessor Details | Mr. Stuart Hatherall, Blueprin stuart@blueprintarchitectura | _ | Design Ltd, Tel | : 01978 356 500, | 1978 356 500, Assessor ID N887-0001 | | | |
| Client | Dave Cottle Civil Engineering | , Dave Cottle C | Civil Engineerir | ing | | | | |

| | Junction detail | Source Type | Psi (W/mK) | Length (m) | Result | Reference |
|---------------|--|---------------------|---------------|---------------|--------|-----------|
| External wall | E1 Steel lintel with perforated steel base plate | Table K1 - Approved | 0.500 | 7.41 | 3.71 | |
| External wall | E3 Sill | Table K1 - Approved | 0.040 | 8.30 | 0.33 | |
| External wall | E4 Jamb | Table K1 - Approved | 0.050 | 24.78 | 1.24 | |
| External wall | E5 Ground floor (normal) | Table K1 - Approved | 0.160 | 18.72 | 3.00 | |
| External wall | E6 Intermediate floor within a dwelling | Table K1 - Approved | 0.070 | 18.72 | 1.31 | |
| External wall | E10 Eaves (insulation at ceiling level) | Table K1 - Approved | 0.060 | 3.94 | 0.24 | |
| External wall | E11 Eaves (insulation at rafter level) | Table K1 - Approved | 0.040 | 6.48 | 0.26 | |
| External wall | E12 Gable (insulation at ceiling level) | Table K1 - Approved | 0.240 | 6.62 | 1.59 | |
| External wall | E13 Gable (insulation at rafter level) | Table K1 - Approved | 0.040 | 1.96 | 0.08 | |
| External wall | E16 Corner (normal) | Table K1 - Approved | 0.090 | 8.67 | 0.78 | |
| External wall | E25 Staggered party wall between dwellings | Table K1 - Default | 0.120 | 8.67 | 1.04 | |
| Party wall | P1 Party wall - Ground floor | Table K1 - Default | 0.160 | 8.34 | 1.33 | |
| Party wall | P2 Party wall - Intermediate floor within a dwelling | Table K1 - Default | 0.000 | 8.34 | 0.00 | |
| Party wall | P4 Party wall - Roof (insulation at ceiling level) | Table K1 - Default | 0.240 | 6.62 | 1.59 | |
| Party wall | P5 Party wall - Roof (insulation at rafter level) | Table K1 - Default | 0.080 | 1.96 | 0.16 | |
| External roof | R1 Head of roof window | Table K1 - Default | 0.080 | 1.10 | 0.09 | |
| External roof | R2 Sill of roof window | Table K1 - Default | 0.060 | 1.10 | 0.07 | |
| External roof | R3 Jamb of roof window | Table K1 - Default | 0.080 | 3.92 | 0.31 | |
| External roof | R6 Flat ceiling | Table K1 - Default | 0.060 | 6.48 | 0.39 | |

Total: 17.50 W/mK: Y-Value: 0.098 W/m²K:



BASIC COMPLIANCE REPORT Calculation Type: New Build (As Designed)



| | | | * | | |
|--|-----------------|-----------------------------------|--------------------------------------|-----------------------------------|-----------|
| Property Reference C102 Plot 1 | | | | Issued on Date | 11/07/202 |
| As Designed | | | Prop Type Ref | | |
| eference Plot 1, Land ac | liacont to Doly | war Dontro Hanrha | eadr, Denbigh, Denbigh | shiro II 16 ANT | |
| | ijacent to Don | | | _ | |
| AP Rating | | 82 B DER | 16.76 | TER | 17.97 |
| nvironmental | | 87 B % DER 1.19 FEE | | 6.73 | NI/A |
| O ₂ Emissions (t/year) Seneral Requirements Compliance | | | 57.50 E<tfee< b=""></tfee<> | TFEE N/A | N/A |
| | | | | | |
| Mr. Stuart Hathers stuart@blueprinta | | | td, Tel: 01978 356 500, | Assessor ID | N887-000 |
| | | ave Cottle Civil Engi | neering | | |
| JMARY FOR INPUT DATA FOR New B | uild (As Desigi | ned) | | | |
| iteria 1 – The DER must be no greate | r than the TEF | ? | | | |
| TER and DER | | | | | |
| Fuel for main heating | | Mains gas | | | |
| Fuel factor | | 1.00 (mains gas) | | | |
| Target Carbon Dioxide Emission Rate | e (TER) | 17.97 | | kgCO ₂ /m ² | |
| Dwelling Carbon Dioxide Emission R | ate (DER) | 16.76 | | kgCO ₂ /m ² | Pas |
| | | -1.21 (-6.7%) | | kgCO ₂ /m ² | |
| riteria 2 – Limits on design flexibility | | | | | |
| Building Fabric | | | | | |
| 2 Fabric U-values | | | | | |
| Element | Average | 2 | Highest | | |
| External wall | _ | ax. 0.21) | 0.21 (max. 0.70) | | Pas |
| Party wall | • | ax. 0.20) | - | | Pas |
| Floor | • | ax. 0.18) | 0.14 (max. 0.70) |) | Pas |
| Roof | • | ax. 0.15) | 0.15 (max. 0.35) | | Pas |
| Openings | • | ax. 1.60) | 1.40 (max. 3.30) | | Pas |
| 2a Thermal bridging | • | - | | | |
| Thermal bridging calculated fron | n linear therm | al transmittances fo | or each junction | | |
| 3 Air permeability | | | | | |
| Air permeability at 50 pascals | | 6.00 (design valu | e) | | |
| Maximum | | 10.0 | | | Pas |
| Fixed Building Services | | | | | |
| 4 Heating efficiency | | | | | |
| Main heating system | | Data from databa | nstar 4000 GR4700iW 30 SEDBUK2009 | | Pas |
| Secondary heating system | | None | | | |
| | | | | | |



Hot water storage

5 Cylinder insulation

Regs Region: Wales Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.14r19

No cylinder

BASIC COMPLIANCE REPORT Calculation Type: New Build (As Designed)



| <u>6 Controls</u> | | | |
|---|-----------------------------------|-------|------|
| Space heating controls | Programmer, TRVs and flow switch | 1 | Pass |
| Hot water controls | No cylinder | | |
| Boiler interlock | Yes | | Pass |
| 7 Low energy lights | | | |
| Percentage of fixed lights with low-energy fittings | 100 | % | |
| Minimum | 75 | % | Pass |
| 8 Mechanical ventilation | | | |
| Not applicable | | | |
| Criterion 3 – Limiting overheating due to solar and | other gains | | |
| 9 Summertime temperature | | | |
| Overheating risk (Wales) | Not significant | | Pass |
| Based on: | | | |
| Overshading | Average | | |
| Windows facing North | 0.96 m², No overhang | | |
| Windows facing East | 6.52 m ² , No overhang | | |
| Windows facing West | 6.05 m², No overhang | | _ |
| Air change rate | 8.00 ach | | _ |
| Blinds/curtains | None | | |
| Criterion 4 – Building performance consistent with | n DER | | |
| Party Walls | | | |
| Туре | U-value | | |
| Unfilled Cavity with Edge Sealing | 0.20 | W/m²K | Pass |
| Air-pressure testing | | | |
| 3 Air permeability | | | |
| Air permeability at 50 pascals | 6.00 (design value) | | |
| Maximum | 10.0 | | Pass |
| 10 Key features | | | |
| Door U-value | 1.20 | W/m²K | |
| Roof window U-value | 1.10 | W/m²K | |
| Photovoltaic array | 0.96 | kW | |





| Property Reference | C102 Plot 1 | | | | | Is | sued on Da | te 11/0 | 07/2022 |
|---|--------------------------------------|--|--------------------------------------|--|----------------|--|--------------------|--------------------|-------------------|
| Assessment | As Designed | d Prop Type Ref | | | | | | | |
| Reference | | | | | | | | | |
| Property | Plot 1, Land ad | jacent to D | olwar, Penti | re Llanrhaeadr, D | enbigh, Dei | nbighsh | ire, LL16 4N | JT | |
| SAP Rating | | | 82 B | DER | 16. | .76 | TER | | 17.97 |
| Environmental | | | 87 B | % DER <ter< td=""><td></td><td></td><td>6.73</td><td></td><td></td></ter<> | | | 6.73 | | |
| CO₂ Emissions (t/year) | | | 1.19 | FEE | 57. | 50 | TFEE | | N/A |
| General Requirements | Compliance | | Pass | % DFEE <tfee< td=""><td></td><td></td><td>N/A</td><td></td><td></td></tfee<> | | | N/A | | |
| | r. Stuart Hathera uart@blueprinta | | _ | k Design Ltd, Tel: | 01978 356 | 500, | Assessor I | D N88 | 37-0001 |
| Client | ave Cottle Civil E | e Civil Engineering, Dave Cottle Civil Engineering | | | | | | | |
| SUMMARY FOR INPUT | DATA FOR: New | Build (As I | Designed) | | | | | | |
| Orientation | N | orth | | | 1 | | | | |
| Property Tenure | - | nknown | | | į | | | | |
| Transaction Type | N | larketed sal | e | | Ī | | | | |
| Terrain Type | R | ural | | | | | | | |
| 1.0 Property Type | Н | House, End-Terrace | | | | | | | |
| 2.0 Number of Storeys | 2 | 2 | | | | | | | |
| 3.0 Date Built | 2 | 2022 | | | | | | | |
| 4.0 Sheltered Sides | 0 | 0 | | | | | | | |
| 5.0 Sunlight/Shade | А | verage or ur | nknown | |] | | | | |
| 6.0 Measurements | | | ound Floor: 1st Storey: | Heat Loss Perimer 18.72 m 18.72 m | ter Inte | rnal Floo 43.28 m 43.28 m | 12 | 2.40 2.48 | m |
| 7.0 Living Area | 1 | 7.00 | | | m² | | | | |
| 8.0 Thermal Mass Parame | ter P | recise calcul | lation | | 1 | | | | |
| Thermal Mass | 2 | 54.07 | | | kJ/m²K | | | | |
| 9.0 External Walls Description | Туре | Const | truction | | | U-Value (W/m²K | | Gross Area (m²) | Nett Area (m²) |
| External Cavity Walls | Cavity Wall | | | aster, lightweight agg | regate block, | 0.20 | 140.00 | 85.78 | 71.44 |
| Dormer Cheeks | Timber Frame | | cavity, any outs er framed wall (| one layer of plasterb | oard) | 0.21 | 9.00 | 2.04 | 0.89 |
| 9.1 Party Walls Description | Туре | Const | truction | | | | U-Value (W/m²K) | Kappa (kJ/m²K) | Area (m²) |
| Party Wall 1 | Unfilled Cavity Edge Sealing | _ | e plasterboard on cavity or cavi | on dabs both sides, lig ty fill | ghtweight aggr | egate | 0.20 | 110.00 | 40.77 |
| 9.2 Internal Walls Description | Constru | ction | | | | | | Kappa (kJ/m²K) | Area (m²) |
| Internal Wall Block Internal wall stud | | lock, plasterb oard on timb | ooard on dabs er frame | | | | | 75.00 9.00 | 63.51 84.40 |



10.0 External Roofs

Regs Region: Wales Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.14r19



| Flat Ceiling Sloping Ceiling 10.2 Internal Ceiling Description Internal Ground Fl 11.0 Heat Loss Floor Description Heat Loss Floor 1 11.2 Internal Floors Description Internal Floor 1 | gs loor rs Type Groui | Construction Plasterboard ceiling | g, carpeted chipbo istruction | ed slope | g level | | 0.13 0.15 | 9.00 9.00 U-Value (W/m²K) 0.14 | 41.07 6.33 Kappa (kJ/m²K) 9.00 Kappa (kJ/m²K) 0.00 | 41.07 5.25 Area (m²) 43.28 Area (m²) 43.28 |
|---|-----------------------------------|---|----------------------------------|-----------------|-------------------|------------------|--------------|--|---|---|
| 10.2 Internal Ceiling Description Internal Ground Fl 11.0 Heat Loss Floor Description Heat Loss Floor 1 11.2 Internal Floors Description Internal Floor 1 | gs loor rs Type Groui | Construction Plasterboard ceiling Con nd Floor - Solid Oth Construction | g, carpeted chipbo istruction | · · | | | 0.15 | U-Value (W/m²K) | Kappa (kJ/m²K) 9.00 Kappa (kJ/m²K) | Area (m²) 43.28 Area (m²) |
| Description Internal Ground Fl 11.0 Heat Loss Floor Description Heat Loss Floor 1 11.2 Internal Floors Description Internal Floor 1 | loor rs Type Groui | Plasterboard ceiling Con nd Floor - Solid Oth Construction | nstruction | oard floor | | | | (W/m²K) | (kJ/m²K) 9.00 Kappa (kJ/m²K) | (m²) 43.28 Area (m²) |
| 11.0 Heat Loss Floor Description Heat Loss Floor 1 11.2 Internal Floors Description Internal Floor 1 | rs Type Groun | Connd Floor - Solid Oth | nstruction | oard floor | | | | (W/m²K) | 9.00 Kappa (kJ/m²K) | Area (m²) |
| Description Heat Loss Floor 1 11.2 Internal Floors Description Internal Floor 1 | Type Groun | nd Floor - Solid Oth | er | | | | | (W/m²K) | (kJ/m ² K) | (m²) |
| 11.2 Internal Floors Description Internal Floor 1 | 5 | Construction | | | | | | | | . , |
| Description Internal Floor 1 | 5 | | I carneted chiebe | | | | | | | |
| Description Internal Floor 1 | 5 | | carnated chinh | | | | | | | |
| | | Plasterboard ceiling | carneted chinh | | | | | | Kappa (kJ/m²K) | Area (m²) |
| 12.0.0 | | | s, carpeteu ciiipbi | oard floor | | | | | 18.00 | 43.28 |
| 12.0 Opening Types Description | | Туре | Glazing | | Glazing Gap | Argon Filled | G-value | e Frame Type | Frame Factor | U Value (W/m²K |
| Windows | Manufacture r | e Window | Double Low-E | Soft 0.05 | | | 0.63 | 71 | 0.70 | 1.40 |
| Doors | | e Half Glazed Door | Double Low-E | Soft 0.05 | | | 0.63 | | 0.70 | 1.20 |
| Rooflights | | e Roof Window | Double Low-E | Soft 0.05 | | | 0.63 | | 0.70 | 1.10 |
| 13.0 Openings | | | | | | | | | | |
| Name (| Opening Type | Location | Orientation | Curtain Type | Overhang Ratio | Wide Overhang | | Height Cou (m) | nt Area (m²) | Curtain Closed |
| Front Windows N | Window | [1] External Cavity Walls | West | None | 0.00 | | | | 5.26 | |
| Rooflights F | Roof Window | [2] Sloping Ceiling | East | None | | | | | 1.08 | |
| Door I | Half Glazed Door | [1] External Cavity Walls | North | | | | | | 1.96 | |
| Front Window \ Dorm | Window | [2] Dormer Cheeks | West | None | 0.00 | | | | 0.79 | |
| Rear Window V | Window | [2] Dormer Cheeks | East | None | 0.00 | | | | 0.36 | |
| | Window | [1] External Cavity Walls | East | None | 0.00 | | | | 6.16 | |
| Side Window \ | Window | [1] External Cavity Walls | North | None | 0.00 | | | | 0.96 | |
| 14.0 Conservatory | | None | | | | | | | | |
| 15.0 Draught Proofi | ing | 100 | | | | % | | | | |
| 16.0 Draught Lobby | 1 | No | | | | | | | | |
| 17.0 Thermal Bridgi | ing | Calculate B | ridges | | | | | | | |



17.1 List of Bridges



| Table K1 - Approved | Source Type | Bridge Typ | e | | Length | Psi | Imported |
|---|-----------------------------|----------------|---------------------------|----------------|--------|------------------------------------|--------------|
| Table K1 - Approved | ** | | | el hase nlate | _ | | - |
| Table K1 - Approved | | | ter with periorated ste | e. sase p.ace | | | |
| Table K1 - Approved | | | | | | | |
| Table K1 - Approved E6 Intermediate floor within a dwelling 18.72 0.070 No Table K1 - Approved E10 Eaves (Insulation at ceiling level) 3.94 0.060 No Table K1 - Approved E11 Eaves (Insulation at rafter level) 6.48 0.040 No Table K1 - Approved E12 Gable (Insulation at rafter level) 6.62 0.240 No Table K1 - Approved E13 Gable (Insulation at rafter level) 1.96 0.040 No Table K1 - Approved E16 Gorner (normal) 8.67 0.090 No Table K1 - Operation E16 Corner (normal) 8.67 0.090 No Table K1 - Default E25 Staggered party wall between dwellings 8.67 0.120 No Table K1 - Default P1 Party wall - Fround floor E70 Fround | | | | | | | |
| Table K1 - Approved | • • | | , , | velling | | | |
| Table K1 - Approved | | | _ | | | | |
| Table K1 - Approved E13 Cable (insulation at ceiling level) 6.62 0.240 No Table K1 - Approved E15 Cable (insulation at rafter level) 1.96 0.040 No Table K1 - Approved E15 Corner (normal) 8.67 0.090 No Table K1 - Approved E15 Corner (normal) 8.67 0.090 No Table K1 - Default E25 Staggered party wall between dwellings 8.67 0.120 No Table K1 - Default P1 Party wall - Fround floor R.34 0.160 No Table K1 - Default P2 Party wall - Fround floor R.34 0.000 No R.34 0.000 No R.34 R.34 0.000 No R.34 R. | | | _ | | | | |
| Table K1 - Approved E13 Gable (insulation at rafter level) 1.96 0.040 No Table K1 - Approved E16 Corner (normal) 8.67 0.090 No Table K1 - Default E125 Staggered party wall between dwellings 8.67 0.120 No Table K1 - Default P1 Party wall - Ground floor 8.34 0.160 No Table K1 - Default P2 Party wall - Intermediate floor within a 8.34 0.000 No dwelling Table K1 - Default P4 Party wall - Intermediate floor within a 8.34 0.000 No No Table K1 - Default P4 Party wall - Roof (insulation at ceiling level) 6.62 0.240 No Table K1 - Default P3 Party wall - Roof (insulation at rafter level) 1.96 0.080 No Table K1 - Default R1 Head of roof window 1.10 0.080 Yes Table K1 - Default R2 Sill of roof window 1.10 0.060 Yes Table K1 - Default R3 Jamb of roof window 1.10 0.060 Yes Table K1 - Default R3 Jamb of roof window 3.92 0.080 Yes Table K1 - Default R6 Flat ceiling 6.48 0.060 No Yes Table K1 - Default R6 Flat ceiling R7 Flat R | | | | • | | | |
| Table K1 - Approved E16 Corner (normal) 8.67 0.990 No Table K1 - Default E25 Staggered party wall between dwellings 8.67 0.120 No Table K1 - Default P1 Party wall - Ground floor 8.34 0.000 No Table K1 - Default P2 Party wall - Ground floor 8.34 0.000 No Mowelling | | | - | | | | |
| Table K1 - Default P1 Party wall - Ground filoro 8.3.4 0.160 No Table K1 - Default P2 Party wall - Intermediate floor within a 8.34 0.160 No Modelling Table K1 - Default P2 Party wall - Intermediate floor within a 8.34 0.000 No dwelling Table K1 - Default P4 Party wall - Roof (insulation at ceiling level) 6.62 0.240 No Table K1 - Default P5 Party wall - Roof (insulation at rafter level) 1.96 0.080 No Table K1 - Default R1 Head of roof window 1.10 0.080 Yes Table K1 - Default R2 Sill of roof window 1.10 0.080 Yes Table K1 - Default R3 Jamb of roof window 1.10 0.060 Yes Table K1 - Default R3 Jamb of roof window 3.92 0.080 Yes Table K1 - Default R6 Flat ceiling 6.48 0.060 No Table K1 - Default R6 Flat ceiling 8.49 0.060 No Table K1 - Default R6 Flat ceiling 8.49 0.060 No Table K1 - Default R6 Flat ceiling 8.49 0.060 No Table K1 - Default R6 Flat ceiling 8.40 0.060 No Table K1 - Default R6 Flat ceiling 8.40 0.060 No Table K1 - Default R6 Flat ceiling 8.40 0.060 No Table K1 - Default R6 Flat ceiling 9.40 0 | * * | | | , | | | |
| Table K1 - Default | * * | | | n dwellings | | | |
| Table K1 - Default P2 Party wall - Intermediate floor within a dwelling Table K1 - Default P4 Party wall - Roof (insulation at ceiling level) 6.62 0.240 No Table K1 - Default P5 Party wall - Roof (insulation at rafter level) 1.96 0.080 No Table K1 - Default P5 Party wall - Roof (insulation at rafter level) 1.96 0.080 No Table K1 - Default R2 Head of roof window 1.10 0.080 Yes Table K1 - Default R3 Jamb of roof window 1.10 0.080 Yes Table K1 - Default R3 Jamb of roof window 3.92 0.080 Yes Table K1 - Default R6 Flat ceiling 6.48 0.060 No Y-value 0.098 W/m²K W/ | | | | | | | |
| Table K1 - Default | | P2 Party w | | within a | | | |
| Table K1 - Default | Table K1 - Default | _ | all - Roof (insulation at | ceiling level) | 6.62 | 0.240 | No |
| Table K1 - Default R1 Head of roof window 1.10 0.080 Yes Table K1 - Default R2 Sill of roof window 1.10 0.060 Yes Table K1 - Default R3 Jamb of roof window 3.92 0.080 Yes Table K1 - Default R6 Flat ceiling 6.48 0.060 No Y-value 0.098 W/m²K 18.0 Pressure Testing Yes W/m²K 18.0 Pressure Testing Yes W/m²K 18.0 Pressure Testing Yes W/m²K 18.0 Property Tested ? Windows fully open M³/(h.m²) @ 50 Pa Property Tested ? As Built AP ₅₀ M³/(h.m²) @ 50 Pa Pa Property Tested? As Built AP ₅₀ M³/(h.m²) @ 50 Pa Pa Property Tested? Nindows open in hot weather Yes Windows fully open Mchanical Ventilation Yes Windows fully open Yes Windows open in hot weather Air change rate 8.00 No 19.0 Mechanical Ventilation Yes No Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of popen flues 0 0 0 0 0 Number of popen flues 0 0 0 0 Number of popen flues 0 0 0 0 Number of passive vents 0 0 0 0 Number of passive vents 0 0 Number of flueless gas fires 0 0 0 0 Number of flueless gas fires 0 0 0 0 Number of flueless gas fires No 21.0 Fixed Cooling System No External External lights fitted Yes | Table K1 - Default | · · | | | 1.96 | 0.080 | No |
| Table K1 - Default R2 Sill of roof window 3.9.2 0.080 Yes Table K1 - Default R3 Jamb of roof window 3.9.2 0.080 Yes Table K1 - Default R6 Flat ceiling 6.48 0.060 No | Table K1 - Default | - | | , | 1.10 | 0.080 | Yes |
| Table K1 - Default R3 Jamb of roof window R6 Flat celling 6.48 0.060 No Y-value 0.098 W/m²k 18.0 Pressure Testing Yes Designed AP ₅₀ 6.000 m³/(h.m²) @ 50 Pa Property Tested ? As Built AP ₅₀ m³/(h.m²) @ 50 Pa 19.0 Mechanical Ventilation Summer Overheating Yes Windows open in hot weather Cross ventilation possible Yes Air change rate 8.000 m³/(h.m²) @ 50 Pa Wechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 Number of intermittent fans Number of passive vents Number of flueless gas fires 0 21.0 Fixed Cooling System No External lights fitted Yes | | | | | | | |
| Table K1 - Default R6 Flat ceiling 6.48 0.060 No Y-value 0.098 W/m²K 18.0 Pressure Testing Yes | | R3 Jamb of | roof window | | | | |
| Designed AP ₅₀ Designed AP ₅₀ Property Tested? As Built AP ₅₀ 19.0 Mechanical Ventilation Summer Overheating Windows open in hot weather Cross ventilation possible Night Ventilation Air change rate Mechanical Ventilation Number of Chimneys MHS SHS Other Total Number of open flues Number of open flues Number of intermittent fans Number of intermittent fans Number of passive vents Number of flueless gas fires 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of L.E.L. fittings Percentage of L.E.L. fittings External External lights fitted Yes | | | | | | | |
| Designed AP ₅₀ | Y-value | | 0.098 | | | W/m²K | |
| Designed AP ₅₀ 6.00 m³/(h.m²) @ 50 Pa Property Tested? As Built AP ₅₀ m³/(h.m²) @ 50 Pa 19.0 Mechanical Ventilation Summer Overheating Windows open in hot weather Cross ventilation possible Night Ventilation Air change rate Mechanical Ventilation Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans Number of passive vents Number of flueless gas fires 21.0 Fixed Cooling System No 22.1 Lighting Internal Total number of L.E.L. fittings Percentage of L.E.L. fittings External External lights fitted Yes | 18.0 Pressure Testing | | Yes | | |] | |
| Property Tested ? As Built AP ₅₀ | • | | | | | $\frac{1}{1}$ m ³ //h n | n²) @ 50 Pa |
| As Built AP ₅₀ | _ | | 0.00 | | | | 11 / @ 30 Fa |
| Summer Overheating Windows open in hot weather Cross ventilation possible Night Ventilation Air change rate Mechanical Ventilation Mechanical Ventilation Mechanical Ventilation Sumber of Chimneys Number of Open flues Number of open flues Number of intermittent fans Number of Intermittent fans Number of flueless gas fires No 22.0 Fixed Cooling System No 22.10 Fixed Cooling System No 23.10 Fixed Cooling System No 24.10 Fixed Cooling System No 25.10 Fixed Cooling System No 26.10 Fixed Cooling System No 27.10 Fixed Cooling System No 28.10 Fixed Cooling System No 29 Percentage of L.E.L. fittings 100.00 9% External External lights fitted Yes | Property Tested ? | | | | | _ | |
| Summer Overheating Windows open in hot weather Cross ventilation possible Night Ventilation Air change rate Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans Number of passive vents Number of flueless gas fires 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.000 | As Built AP ₅₀ | | | | | m³/(h.n | n²) @ 50 Pa |
| Windows open in hot weather Cross ventilation possible Night Ventilation Air change rate Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | 19.0 Mechanical Ventilatio | n | | | | | |
| Windows open in hot weather Cross ventilation possible Night Ventilation Air change rate Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 Number of open flues 0 0 0 Number of intermittent fans Number of passive vents Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of L.E.L. fittings Percentage of L.E.L. fittings 100.00 External External lights fitted Yes | Summer Overheating | | | | | | |
| Cross ventilation possible Yes Night Ventilation Yes Air change rate 8.00 Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | _ | at woath | Mindows full | | | | |
| Night Ventilation Air change rate 8.00 Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of L.E.L. fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 | | | | y open | | | |
| Air change rate Mechanical Ventilation Mechanical Ventilation System Present NO 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Percentage of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 | Cross ventilation po | ssible | Yes | | | | |
| Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Percentage of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | Night Ventilation | | Yes | | | | |
| Mechanical Ventilation Mechanical Ventilation System Present No 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Percentage of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | Air change rate | | 8.00 | | | | |
| Mechanical Ventilation System Present 20.0 Fans, Open Fireplaces, Flues MHS SHS Other Total Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | _ | | 3.00 | | | | |
| Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of passive vents 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 | | | | | | | |
| Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Percentage of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 | Mechanical Ventilation | n System Prese | nt No | | | | |
| Number of Chimneys 0 0 0 0 Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | 20.0 Fans, Open Fireplaces, | , Flues | MHC | chc | Other | Tota | al. |
| Number of open flues 0 0 0 0 Number of intermittent fans 4 Number of passive vents 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | Number of Chimnes | | | эпэ | | | " |
| Number of intermittent fans Number of passive vents Number of flueless gas fires 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings Percentage of L.E.L. fittings Percentage of L.E.L. fittings External External lights fitted Yes | | | | | | | |
| Number of passive vents Number of flueless gas fires 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Total number of L.E.L. fittings Percentage of L.E.L. fittings External External lights fitted Yes | | fanc | U | | U | _ | |
| Number of flueless gas fires 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | | | | | | | |
| 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 29 Total number of L.E.L. fittings Percentage of L.E.L. fittings External External lights fitted Yes | | | | | | | |
| Internal Total number of light fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | | illes | Г., | | | | |
| Internal Total number of light fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | 21.0 Fixed Cooling System | | No | | | | |
| Total number of light fittings 29 Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | 22.0 Lighting | | | | | | |
| Total number of L.E.L. fittings 29 Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | Internal | | | | | _ | |
| Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | Total number of ligh | nt fittings | 29 | | | | |
| Percentage of L.E.L. fittings 100.00 % External External lights fitted Yes | Total number of L.E | .L. fittings | 29 | <u> </u> | | 7 | |
| External lights fitted Yes | | _ | | | | % | |
| | External | | | | | _ | |
| Light and motion sensor Yes | External lights fitted | l | Yes | | | | |
| 0 | Light and motion se | nsor | Yes | | | 1 | |
| | | | L | | | | |





| 23.0 Electricity Tariff | Standard | |
|-------------------------|--------------------------------------|---|
| 24.0 Main Heating 1 | Database | |
| Description | Main Gas Boiler | |
| Percentage of Heat | 100 | % |
| Database Ref. No. | 18907 | |
| Fuel Type | Mains gas | |
| Main Heating | BGW | |
| SAP Code | 104 | |
| In Winter | 90.2 | |
| In Summer | 87.6 | |
| Controls | CBG Programmer, TRVs and flow switch | |
| PCDF Controls | 0 | |
| Delayed Start Stat | Yes | |
| Sap Code | 2108 | |
| Flue Type | Balanced | |
| Fan Assisted Flue | Yes | |
| Is MHS Pumped | Pump in heated space | |
| Heat Emitter | Radiators | |
| Flow Temperature | Normal (> 45°C) | |
| Combi boiler type | Standard Combi | |
| Combi keep hot type | None | |
| 25.0 Main Heating 2 | None | |

| 29.0 Hot Water Cylinder | None |
|---|-------------------------|
| SAP Code | 901 |
| Water use <= 125 litres/person/day | Yes |
| Solar Panel | No |
| Waste Water Heat Recovery Storage System | No |
| Waste Water Heat Recovery Instantaneous System 2 | No |
| Waste Water Heat Recovery Instantaneous System 1 | No |
| Flue Gas Heat Recovery System | No |
| Water Heating | Main Heating 1 |
| 28.0 Water Heating | HWP From main heating 1 |
| Community Heating | None |
| | |

32.0 Photovoltaic Unit

One Dwelling

PV Cells kWp 0.96

Overshading Orientation Elevation East 30° None Or Little

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards



Connected to Dwelling

Solar water heating

Wind turbine



Typical Cost

£4,000 - £6,000

Typical Cost

£15,000 - £25,000

Typical savings per year £26

Typical savings per year £695 Ratings after improvement

SAP rating Environmental Impact

B 83

Ratings after improvement

SAP rating Environmental Impact

A 104

