

# PREDICTED ENERGY ASSESSMENT

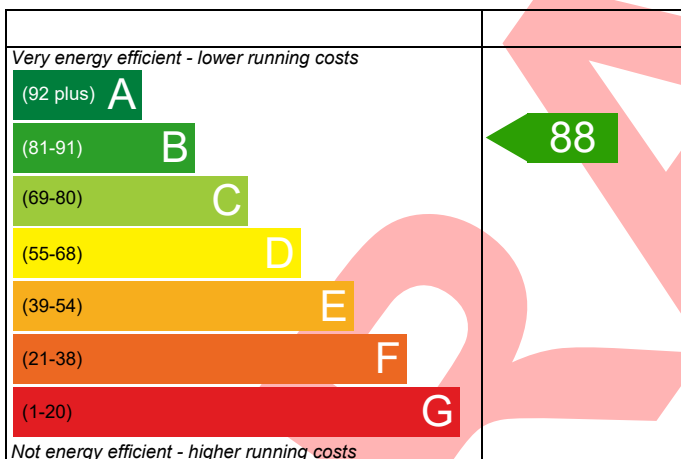
Flat 1, 20 , Shinfield Road,  
Reading,  
RG2 7BW

Dwelling type: Flat, Semi-Detached  
Date of assessment: 30/06/2023  
Produced by: Paul Whiffin  
Total floor area: 70.96 m<sup>2</sup>

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 (CO<sub>2</sub>) emissions.

## Energy Efficiency Rating

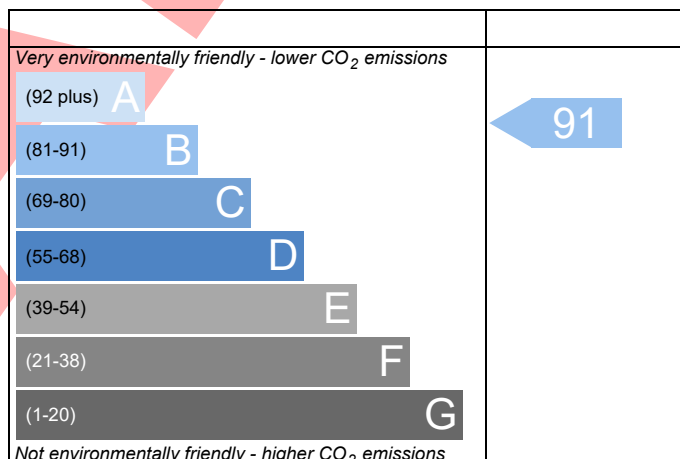


England

EU Directive  
2002/91/EC

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 (CO<sub>2</sub>) Rating



England

EU Directive  
2002/91/EC

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.

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

# BUILDING REGULATION COMPLIANCE

## Calculation Type: New Build (As Designed)

|                                    |                                                                          |                |             |
|------------------------------------|--------------------------------------------------------------------------|----------------|-------------|
| Property Reference                 | Q09487 - Flat 1                                                          | Issued on Date | 30/06/2023  |
| Assessment Reference               | Design V2 (Gas & PV)                                                     | Prop Type Ref  |             |
| Property                           | Flat 1, 20, Shinfield Road, Reading, RG2 7BW                             |                |             |
| SAP Rating                         | 88 B                                                                     | DER            | 13.30       |
| Environmental                      | 91 B                                                                     | TER            | 18.40       |
| CO <sub>2</sub> Emissions (t/year) | 0.65                                                                     | % DER<TER      | 27.72       |
| General Requirements Compliance    | Pass                                                                     | DFEE           | 44.20       |
|                                    |                                                                          | TREE           | 48.15       |
|                                    |                                                                          | % DFEE<TFEE    | 8.21        |
| Assessor Details                   | Mr. Paul Whiffin, Paul Whiffin, Tel: 01763 268685, energy@atspaceltd.com |                | Assessor ID |
| Client                             |                                                                          |                | y314-0001   |

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

#### Criterion 1 – Achieving the TER and TFE rate

##### 1a TER and DER

|                                             |                  |                                   |      |
|---------------------------------------------|------------------|-----------------------------------|------|
| Fuel for main heating                       | Mains gas        |                                   |      |
| Fuel factor                                 | 1.00 (mains gas) |                                   |      |
| Target Carbon Dioxide Emission Rate (TER)   | 18.40            | kgCO <sub>2</sub> /m <sup>2</sup> |      |
| Dwelling Carbon Dioxide Emission Rate (DER) | 13.30            | kgCO <sub>2</sub> /m <sup>2</sup> | Pass |
|                                             | -5.10 (-27.7%)   | kgCO <sub>2</sub> /m <sup>2</sup> |      |

##### 1b TFE and DFEE

|                                          |              |                        |      |
|------------------------------------------|--------------|------------------------|------|
| Target Fabric Energy Efficiency (TFEE)   | 48.15        | kWh/m <sup>2</sup> /yr |      |
| Dwelling Fabric Energy Efficiency (DFEE) | 44.20        | kWh/m <sup>2</sup> /yr |      |
|                                          | -4.0 (-8.3%) | kWh/m <sup>2</sup> /yr | Pass |

#### Criterion 2 – Limits on design flexibility

##### Limiting Fabric Standards

##### 2 Fabric U-values

| Element       | Average          | Highest          |      |
|---------------|------------------|------------------|------|
| External wall | 0.18 (max. 0.30) | 0.19 (max. 0.70) | Pass |
| Party wall    | 0.00 (max. 0.20) | -                | Pass |
| Floor         | 0.11 (max. 0.25) | 0.11 (max. 0.70) | Pass |
| Openings      | 1.50 (max. 2.00) | 1.50 (max. 3.30) | Pass |

##### 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

##### 3 Air permeability

|                                |                     |                                             |      |
|--------------------------------|---------------------|---------------------------------------------|------|
| Air permeability at 50 pascals | 5.01 (design value) | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |      |
| Maximum                        | 10.0                | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa | Pass |

##### Limiting System Efficiencies

##### 4 Heating efficiency

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

# BUILDING REGULATION COMPLIANCE

## Calculation Type: New Build (As Designed)

Main heating system

Boiler system with radiators or underfloor - Mains gas  
Data from database  
Ideal LOGIC CODE COMBI ESP1 26  
Combi boiler  
Efficiency: 89.6% SEDBUK2009  
Minimum: 88.0%

Pass

Secondary heating system

None

### 5 Cylinder insulation

Hot water storage

No cylinder

### 6 Controls

Space heating controls

Time and temperature zone control

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 the effects of heat gains in summer

### 9 Summertime temperature

Overheating risk (Thames Valley)

Slight

Pass

Based on:

Overshading

Average

Windows facing South East

1.09 m<sup>2</sup>, No overhang

Windows facing South West

7.62 m<sup>2</sup>, No overhang

Windows facing North West

1.09 m<sup>2</sup>, No overhang

Air change rate

3.00 ach

Blinds/curtains

None

## Criterion 4 – Building performance consistent with DER and DFEE rate

### Party Walls

Type

U-value

Filled Cavity with Edge Sealing

0.00

W/m<sup>2</sup>K

Pass

### Air permeability and pressure testing

#### 3 Air permeability

Air permeability at 50 pascals

5.01 (design value)

m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Maximum

10.0

m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Pass

### 10 Key features

Party wall U-value

0.00

W/m<sup>2</sup>K

Floor U-value

0.11

W/m<sup>2</sup>K

Photovoltaic array

1.00

kW

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

# THERMAL BRIDGING

## Calculation Type: New Build (As Designed)

|                                    |                                                                          |               |       |                |            |
|------------------------------------|--------------------------------------------------------------------------|---------------|-------|----------------|------------|
| Property Reference                 | Q09487 - Flat 1                                                          |               |       | Issued on Date | 30/06/2023 |
| Assessment Reference               | Design V2 (Gas & PV)                                                     | Prop Type Ref |       |                |            |
| Property                           | Flat 1, 20 , Shinfield Road, Reading, RG2 7BW                            |               |       |                |            |
|                                    |                                                                          |               |       |                |            |
| SAP Rating                         | 88 B                                                                     | DER           | 13.30 | TER            | 18.40      |
| Environmental                      | 91 B                                                                     | % DER<TER     | 27.72 |                |            |
| CO <sub>2</sub> Emissions (t/year) | 0.65                                                                     | DFEE          | 44.20 | TFEE           | 48.15      |
| General Requirements Compliance    | Pass                                                                     | % DFEE<TFEE   | 8.21  |                |            |
|                                    |                                                                          |               |       |                |            |
| Assessor Details                   | Mr. Paul Whiffin, Paul Whiffin, Tel: 01763 268685, energy@atspaceltd.com |               |       | Assessor ID    | y314-0001  |
| Client                             |                                                                          |               |       |                |            |

|               | Junction detail                                                           | Source Type         | Psi (W/mK) | Length (m) | Result | Reference    |
|---------------|---------------------------------------------------------------------------|---------------------|------------|------------|--------|--------------|
| External wall | E2 Other lintels (including other steel lintels)                          | Table K1 - Approved | 0.300      | 7.28       | 2.18   | E2 - ACD     |
| External wall | E3 Sill                                                                   | Table K1 - Approved | 0.040      | 4.46       | 0.18   | E3 - ACD     |
| External wall | E4 Jamb                                                                   | Table K1 - Approved | 0.050      | 20.72      | 1.04   | E4 - ACD     |
| External wall | E5 Ground floor (normal)                                                  | Table K1 - Approved | 0.160      | 32.48      | 5.20   | E5 - ACD     |
| External wall | E16 Corner (normal)                                                       | Table K1 - Approved | 0.090      | 9.60       | 0.86   | E16 - ACD    |
| External wall | E17 Corner (inverted – internal area greater than external area)          | Table K1 - Approved | -0.090     | 4.80       | -0.43  | E17 - ACD    |
| External wall | E18 Party wall between dwellings                                          | Table K1 - Approved | 0.060      | 4.80       | 0.29   | E18 - ACD    |
| Party wall    | P1 Party wall - Ground floor                                              | Table K1 - Default  | 0.160      | 4.87       | 0.78   | P1 - Default |
| Party wall    | P3 Party wall - Intermediate floor between dwellings (in blocks of flats) | Table K1 - Default  | 0.000      | 37.35      | 0.00   | P3 - Default |

Total: **10.09** W/mK:  
Y-Value: **0.068** W/m²K:

# U-VALUE CALCULATOR REPORT

|                      |                                              |                |            |
|----------------------|----------------------------------------------|----------------|------------|
| Property Reference   | Q09487 - Flat 1                              | Issued on Date | 30/06/2023 |
| Assessment Reference | Design V2 (Gas & PV)                         | Prop Type Ref  |            |
| Project              | Flat 1, 20, Shinfield Road, Reading, RG2 7BW |                |            |
| Calculation Type     | New Build (As Designed)                      |                |            |

|                                    |      |             |       |      |       |
|------------------------------------|------|-------------|-------|------|-------|
| SAP Rating                         | 88 B | DER         | 13.30 | TER  | 18.40 |
| Environmental                      | 91 B | % DER<TER   | 27.72 |      |       |
| CO <sub>2</sub> Emissions (t/year) | 0.65 | DFEE        | 44.20 | TFEE | 48.15 |
| General Requirements Compliance    | Pass | % DFEE<TFEE | 8.21  |      |       |

|                  |                                                                          |             |           |
|------------------|--------------------------------------------------------------------------|-------------|-----------|
| Assessor Details | Mr. Paul Whiffin, Paul Whiffin, Tel: 01763 268685, energy@atspaceltd.com | Assessor ID | y314-0001 |
| Client           |                                                                          |             |           |

## Building Elements

### Wall External Wall - Masonry wall full cavity fill-slabs

#### Wall Type: Standard Wall

| Layer       | Description                                                                                                                                          | Thickness (mm) | Conductivity (W/m <sup>2</sup> K) | Resistance (m <sup>2</sup> K/W) | Fraction (%) |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------|---------------------------------|--------------|
| Ext surface |                                                                                                                                                      |                |                                   | 0.0400                          |              |
| Layer 1     | <b>Render</b>                                                                                                                                        |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 5              | 1.0000                            | 0.0050                          | 100.00       |
| Layer 2     | <b>Medium Density Block (0.45)</b>                                                                                                                   |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 100            | 0.4500                            | 0.2222                          | 93.43        |
|             | Main construction                                                                                                                                    | 100            | 0.8803                            | 0.1136                          | 6.57         |
| Layer 3     | <b>Dritherm 32</b>                                                                                                                                   |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 150            | 0.0320                            | 4.6875                          | 100.00       |
|             | Corrections - Air Gap: Level 1, Fasteners: Wall ties, Cross sectional area: 12.50 mm <sup>2</sup> , Lambda: 17.000 W/m.K, per m <sup>2</sup> : 2.500 |                |                                   |                                 |              |
| Layer 4     | <b>Medium Density Block (0.45)</b>                                                                                                                   |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 100            | 0.4500                            | 0.2222                          | 93.43        |
|             | Main construction                                                                                                                                    | 100            | 0.8803                            | 0.1136                          | 6.57         |
| Layer 5     | <b>airspace/plaster dabs</b>                                                                                                                         |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 15             | 0.0882                            | 0.1700                          | 80.00        |
|             | Main construction                                                                                                                                    | 15             | 0.0882                            | 0.1700                          | 20.00        |
|             | Corrections - Cavity Unventilated, Emissivity: Normal                                                                                                |                |                                   |                                 |              |
| Layer 6     | <b>Plasterboard (standard wallboard)</b>                                                                                                             |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 12.5           | 0.2100                            | 0.0595                          | 100.00       |
| Layer 7     | <b>Plaster</b>                                                                                                                                       |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 3              | 0.4000                            | 0.0075                          | 100.00       |
| Int surface |                                                                                                                                                      |                |                                   | 0.1300                          |              |

|                   |                                              |                                               |                                    |
|-------------------|----------------------------------------------|-----------------------------------------------|------------------------------------|
| Total resistance: | Upper limit = 5.529 m <sup>2</sup> K/W       | Lower limit = 5.518 m <sup>2</sup> K/W        | Average = 5.524 m <sup>2</sup> K/W |
|                   | Total correction = 0.0092 m <sup>2</sup> K/W | U-value (unrounded) = 0.19 W/m <sup>2</sup> K |                                    |

Unheated space: None

Total thickness: 386 mm

U-value: 0.19 W/m<sup>2</sup> K

Kappa: n/a

# U-VALUE CALCULATOR REPORT

|                                    |                                                                          |                |            |
|------------------------------------|--------------------------------------------------------------------------|----------------|------------|
| Property Reference                 | Q09487 - Flat 1                                                          | Issued on Date | 30/06/2023 |
| Assessment Reference               | Design V2 (Gas & PV)                                                     | Prop Type Ref  |            |
| Project                            | Flat 1, 20, Shinfield Road, Reading, RG2 7BW                             |                |            |
| Calculation Type                   | New Build (As Designed)                                                  |                |            |
| SAP Rating                         | 88 B                                                                     | DER            | 13.30      |
| Environmental                      | 91 B                                                                     | TER            | 18.40      |
| CO <sub>2</sub> Emissions (t/year) | 0.65                                                                     | % DER<TER      | 27.72      |
| General Requirements Compliance    | Pass                                                                     | DFEE           | 44.20      |
|                                    |                                                                          | TFEE           | 48.15      |
|                                    |                                                                          | % DFEE<TFEE    | 8.21       |
| Assessor Details                   | Mr. Paul Whiffin, Paul Whiffin, Tel: 01763 268685, energy@atspaceltd.com | Assessor ID    | y314-0001  |
| Client                             |                                                                          |                |            |

## Building Elements

### Wall Sheltered Wall - Masonry wall full cavity fill-slabs

#### Wall Type: Standard Wall

| Layer       | Description                                                                                                                                          | Thickness (mm) | Conductivity (W/m <sup>2</sup> K) | Resistance (m <sup>2</sup> K/W) | Fraction (%) |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------|---------------------------------|--------------|
| Ext surface |                                                                                                                                                      |                |                                   | 0.0400                          |              |
| Layer 1     | <b>Plaster</b>                                                                                                                                       |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 3              | 0.4000                            | 0.0075                          | 100.00       |
| Layer 2     | <b>Plasterboard (standard wallboard)</b>                                                                                                             |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 12.5           | 0.2100                            | 0.0595                          | 100.00       |
| Layer 3     | <b>airspace/plaster dabs</b>                                                                                                                         |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 15             | 0.0882                            | 0.1700                          | 80.00        |
|             | Main construction                                                                                                                                    | 15             | 0.0882                            | 0.1700                          | 20.00        |
|             | Corrections - Cavity Unventilated, Emissivity: Normal                                                                                                |                |                                   |                                 |              |
| Layer 4     | <b>Medium Density Block (0.45)</b>                                                                                                                   |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 100            | 0.4500                            | 0.2222                          | 93.43        |
|             | Main construction                                                                                                                                    | 100            | 0.8803                            | 0.1136                          | 6.57         |
| Layer 5     | <b>Dritherm 32</b>                                                                                                                                   |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 150            | 0.0320                            | 4.6875                          | 100.00       |
|             | Corrections - Air Gap: Level 1, Fasteners: Wall ties, Cross sectional area: 12.50 mm <sup>2</sup> , Lambda: 17.000 W/m.K, per m <sup>2</sup> : 2.500 |                |                                   |                                 |              |
| Layer 6     | <b>Medium Density Block (0.45)</b>                                                                                                                   |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 100            | 0.4500                            | 0.2222                          | 93.43        |
|             | Main construction                                                                                                                                    | 100            | 0.8803                            | 0.1136                          | 6.57         |
| Layer 7     | <b>airspace/plaster dabs</b>                                                                                                                         |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 15             | 0.0882                            | 0.1700                          | 80.00        |
|             | Main construction                                                                                                                                    | 15             | 0.0882                            | 0.1700                          | 20.00        |
|             | Corrections - Cavity Unventilated, Emissivity: Normal                                                                                                |                |                                   |                                 |              |
| Layer 8     | <b>Plasterboard (standard wallboard)</b>                                                                                                             |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 12.5           | 0.2100                            | 0.0595                          | 100.00       |
| Layer 9     | <b>Plaster</b>                                                                                                                                       |                |                                   |                                 |              |
|             | Main construction                                                                                                                                    | 3              | 0.4000                            | 0.0075                          | 100.00       |
| Int surface |                                                                                                                                                      |                |                                   | 0.1300                          |              |

|                   |                                              |                                               |                                    |
|-------------------|----------------------------------------------|-----------------------------------------------|------------------------------------|
| Total resistance: | Upper limit = 5.761 m <sup>2</sup> K/W       | Lower limit = 5.750 m <sup>2</sup> K/W        | Average = 5.756 m <sup>2</sup> K/W |
|                   | Total correction = 0.0085 m <sup>2</sup> K/W | U-value (unrounded) = 0.18 W/m <sup>2</sup> K |                                    |

# U-VALUE CALCULATOR REPORT

Unheated space: None

Total thickness: 411 mm

U-value: 0.18 W/m<sup>2</sup> K

Kappa: n/a

# U-VALUE CALCULATOR REPORT

|                      |                                              |                |            |
|----------------------|----------------------------------------------|----------------|------------|
| Property Reference   | Q09487 - Flat 1                              | Issued on Date | 30/06/2023 |
| Assessment Reference | Design V2 (Gas & PV)                         | Prop Type Ref  |            |
| Project              | Flat 1, 20, Shinfield Road, Reading, RG2 7BW |                |            |
| Calculation Type     | New Build (As Designed)                      |                |            |

|                                    |      |             |       |      |       |
|------------------------------------|------|-------------|-------|------|-------|
| SAP Rating                         | 88 B | DER         | 13.30 | TER  | 18.40 |
| Environmental                      | 91 B | % DER<TER   | 27.72 |      |       |
| CO <sub>2</sub> Emissions (t/year) | 0.65 | DFEE        | 44.20 | TFEE | 48.15 |
| General Requirements Compliance    | Pass | % DFEE<TFEE | 8.21  |      |       |

|                  |                                                                          |             |           |
|------------------|--------------------------------------------------------------------------|-------------|-----------|
| Assessor Details | Mr. Paul Whiffin, Paul Whiffin, Tel: 01763 268685, energy@atspaceltd.com | Assessor ID | y314-0001 |
| Client           |                                                                          |             |           |

## Building Elements

### Floor Ground Floor - Floor - suspended beam-and-block floor

Floor Type: Suspended Floor

Area = 70.96 m<sup>2</sup>, Perimeter = 32.48 m, Wall thickness = 300.00 mm, Soil: Clay

Depth of underfloor space below ground: 0.200 m Floor wind shielding: Average (suburban)

Floor height above ground: h = 0.000 m

U-value of walls above ground: U<sub>w</sub> = 0.180 m

Ventilation openings per perimeter length: e = 0.0015 %

Mean wind speed: v = 5.000 m/s

Resistance on solum: R<sub>g</sub> = 0.000 m<sup>2</sup>K/W

| Layer       | Description                                                | Thickness (mm) | Conductivity (W/m <sup>2</sup> K) | Resistance (m <sup>2</sup> K/W) | Fraction (%) |
|-------------|------------------------------------------------------------|----------------|-----------------------------------|---------------------------------|--------------|
| Ext surface |                                                            |                |                                   | 0.1700                          |              |
| Layer 1     | AAC (600 kg/m <sup>3</sup> )/ concrete                     |                |                                   |                                 |              |
|             | Main construction                                          | 100            | 0.1800                            | 0.5556                          | 86.30        |
|             | Main construction                                          | 100            | 1.3500                            | 0.0741                          | 13.70        |
| Layer 2     | Kingspan K103                                              |                |                                   |                                 |              |
|             | Main construction                                          | 125            | 0.0190                            | 6.5789                          | 100.00       |
|             | Corrections - Air Gap: Level 1, Fasteners: None or plastic |                |                                   |                                 |              |
| Layer 3     | Screed                                                     |                |                                   |                                 |              |
|             | Main construction                                          | 75             | 1.1500                            | 0.0652                          | 100.00       |
| Int surface |                                                            |                |                                   | 0.1700                          |              |

Total resistance: Upper limit = 7.470 m<sup>2</sup> K/W Lower limit = 7.278 m<sup>2</sup> K/W Average = 7.374 m<sup>2</sup> K/W

Total correction = 0.0080 m<sup>2</sup> K/W

U-value (unrounded) = 0.11 W/m<sup>2</sup> K

Unheated space: None

Total thickness: 300 mm

U-value: 0.11 W/m<sup>2</sup> K

Kappa: n/a

# BASIC COMPLIANCE REPORT

## Calculation Type: New Build (As Designed)

|                                          |                                                                          |                       |                    |
|------------------------------------------|--------------------------------------------------------------------------|-----------------------|--------------------|
| <b>Property Reference</b>                | Q09487 - Flat 1                                                          | <b>Issued on Date</b> | 30/06/2023         |
| <b>Assessment Reference</b>              | Design V2 (Gas & PV)                                                     | <b>Prop Type Ref</b>  |                    |
| <b>Property</b>                          | Flat 1, 20, Shinfield Road, Reading, RG2 7BW                             |                       |                    |
| <b>SAP Rating</b>                        | 88 B                                                                     | <b>DER</b>            | 13.30              |
| <b>Environmental</b>                     | 91 B                                                                     | <b>TER</b>            | 18.40              |
| <b>CO<sub>2</sub> Emissions (t/year)</b> | 0.65                                                                     | <b>% DER&lt;TER</b>   | 27.72              |
| <b>General Requirements Compliance</b>   | Pass                                                                     | <b>DFEE</b>           | 44.20              |
|                                          |                                                                          | <b>TFEE</b>           | 48.15              |
|                                          |                                                                          | <b>% DFEE&lt;TFEE</b> | 8.21               |
| <b>Assessor Details</b>                  | Mr. Paul Whiffin, Paul Whiffin, Tel: 01763 268685, energy@atspaceltd.com |                       | <b>Assessor ID</b> |
| <b>Client</b>                            | y314-0001                                                                |                       |                    |

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

#### Criterion 1 – Achieving the TER and TFEE rate

##### 1a TER and DER

|                                             |                  |                                   |      |
|---------------------------------------------|------------------|-----------------------------------|------|
| Fuel for main heating                       | Mains gas        |                                   |      |
| Fuel factor                                 | 1.00 (mains gas) |                                   |      |
| Target Carbon Dioxide Emission Rate (TER)   | 18.40            | kgCO <sub>2</sub> /m <sup>2</sup> |      |
| Dwelling Carbon Dioxide Emission Rate (DER) | 13.30            | kgCO <sub>2</sub> /m <sup>2</sup> | Pass |
|                                             | -5.10 (-27.7%)   | kgCO <sub>2</sub> /m <sup>2</sup> |      |

##### 1b TFEE and DFEE

|                                          |              |                        |      |
|------------------------------------------|--------------|------------------------|------|
| Target Fabric Energy Efficiency (TFEE)   | 48.15        | kWh/m <sup>2</sup> /yr |      |
| Dwelling Fabric Energy Efficiency (DFEE) | 44.20        | kWh/m <sup>2</sup> /yr |      |
|                                          | -4.0 (-8.3%) | kWh/m <sup>2</sup> /yr | Pass |

#### Criterion 2 – Limits on design flexibility

##### Limiting Fabric Standards

##### 2 Fabric U-values

| Element       | Average          | Highest          |      |
|---------------|------------------|------------------|------|
| External wall | 0.18 (max. 0.30) | 0.19 (max. 0.70) | Pass |
| Party wall    | 0.00 (max. 0.20) | -                | Pass |
| Floor         | 0.11 (max. 0.25) | 0.11 (max. 0.70) | Pass |
| Openings      | 1.50 (max. 2.00) | 1.50 (max. 3.30) | Pass |

##### 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

##### 3 Air permeability

|                                |                     |      |
|--------------------------------|---------------------|------|
| Air permeability at 50 pascals | 5.01 (design value) |      |
| Maximum                        | 10.0                | Pass |

##### Limiting System Efficiencies

##### 4 Heating efficiency

|                          |                                                                                                                                                                                  |      |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Main heating system      | Boiler system with radiators or underfloor - Mains gas<br>Data from database<br>Ideal LOGIC CODE COMBI ESP1 26<br>Combi boiler<br>Efficiency: 89.6% SEDBUK2009<br>Minimum: 88.0% | Pass |
| Secondary heating system | None                                                                                                                                                                             |      |

# BASIC COMPLIANCE REPORT

## Calculation Type: New Build (As Designed)

### 5 Cylinder insulation

Hot water storage

### 6 Controls

Space heating controls

Hot water controls

Boiler interlock

### 7 Low energy lights

Percentage of fixed lights with low-energy fittings  %

Minimum  %

### 8 Mechanical ventilation

Not applicable

## Criterion 3 – Limiting the effects of heat gains in summer

### 9 Summertime temperature

Overheating risk (Thames Valley)

Based on:

Overshading

Windows facing South East

Windows facing South West

Windows facing North West

Air change rate

Blinds/curtains

## Criterion 4 – Building performance consistent with DER and DFEE rate

### Party Walls

| Type                            | U-value                           |       |                                   |
|---------------------------------|-----------------------------------|-------|-----------------------------------|
| Filled Cavity with Edge Sealing | <input type="text" value="0.00"/> | W/m²K | <input type="text" value="Pass"/> |

### Air permeability and pressure testing

#### 3 Air permeability

Air permeability at 50 pascals

Maximum

### 10 Key features

Party wall U-value  W/m²K

Floor U-value  W/m²K

Photovoltaic array  kW

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

# SUMMARY FOR INPUT DATA

## Calculation Type: New Build (As Designed)

|                                    |                                                                          |                |             |
|------------------------------------|--------------------------------------------------------------------------|----------------|-------------|
| Property Reference                 | Q09487 - Flat 1                                                          | Issued on Date | 30/06/2023  |
| Assessment Reference               | Design V2 (Gas & PV)                                                     | Prop Type Ref  |             |
| Property                           | Flat 1, 20, Shinfield Road, Reading, RG2 7BW                             |                |             |
| SAP Rating                         | 88 B                                                                     | DER            | 13.30       |
| Environmental                      | 91 B                                                                     | TER            | 18.40       |
| CO <sub>2</sub> Emissions (t/year) | 0.65                                                                     | % DER<TER      | 27.72       |
| General Requirements Compliance    | Pass                                                                     | DfEE           | 44.20       |
|                                    |                                                                          | TfEE           | 48.15       |
|                                    |                                                                          | % DfEE<TfEE    | 8.21        |
| Assessor Details                   | Mr. Paul Whiffin, Paul Whiffin, Tel: 01763 268685, energy@atspaceltd.com |                | Assessor ID |
| Client                             |                                                                          |                | y314-0001   |

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

|                       |                     |
|-----------------------|---------------------|
| Orientation           | South West          |
| Property Tenure       | Unknown             |
| Transaction Type      | New dwelling        |
| Terrain Type          | Urban               |
| 1.0 Property Type     | Flat, Semi-Detached |
| 2.0 Number of Storeys | 1                   |
| 3.0 Date Built        | 2023                |
| 4.0 Sheltered Sides   | 1                   |
| 5.0 Sunlight/Shade    | Average or unknown  |

#### 6.0 Measurements

|                            | Ground Floor:       | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|----------------------------|---------------------|---------------------|----------------------|-----------------------|
|                            |                     | 32.48 m             | 70.96 m <sup>2</sup> | 2.40 m                |
| 7.0 Living Area            | 24.38               | m <sup>2</sup>      |                      |                       |
| 8.0 Thermal Mass Parameter | Precise calculation |                     |                      |                       |
| Thermal Mass               | 243.19              | kJ/m <sup>2</sup> K |                      |                       |

#### 9.0 External Walls

| Description    | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area (m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) |
|----------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Cavity Wall    | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 62.22                        | 50.31                       |
| Sheltered Wall | Cavity Wall | Cavity wall : plasterboard on dabs, dense block, filled cavity, any outside structure                           | 0.18                         | 150.00                      | 15.73                        | 15.73                       |

#### 9.1 Party Walls

| Description  | Type                            | Construction                                                     | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------|---------------------------------|------------------------------------------------------------------|------------------------------|-----------------------------|------------------------|
| Party Wall 1 | Filled Cavity with Edge Sealing | Single plasterboard on both sides, dense cellular blocks, cavity | 0.00                         | 70.00                       | 11.68                  |

#### 9.2 Internal Walls

| Description     | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|------------------------------|-----------------------------|------------------------|
| Stud Partitions | Plasterboard on timber frame | 9.00                        | 121.66                 |

#### 10.1 Party Ceilings

| Description    | Construction              | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|----------------|---------------------------|-----------------------------|------------------------|
| Party Ceilings | Timber I-joists, carpeted | 20.00                       | 70.96                  |

# SUMMARY FOR INPUT DATA

## Calculation Type: New Build (As Designed)

### 11.0 Heat Loss Floors

| Description  | Type                 | Construction                       | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Area<br>(m²) |
|--------------|----------------------|------------------------------------|--------------------|-------------------|--------------|
| Ground Floor | Ground Floor - Solid | Suspended concrete floor, carpeted | 0.11               | 75.00             | 70.96        |

### 12.0 Opening Types

| Description | Data Source | Type       | Glazing               | Glazing Gap | Argon Filled | G-value | Frame Type | Frame Factor | U Value<br>(W/m²K) |
|-------------|-------------|------------|-----------------------|-------------|--------------|---------|------------|--------------|--------------------|
| Windows     | Manufacture | Window     | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.50               |
| Glazed Door | Manufacture | Window     | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.50               |
| Solid Door  | Manufacture | Solid Door |                       |             |              |         |            |              | 1.50               |

### 13.0 Openings

| Name | Opening Type | Location        | Orientation | Curtain Type | Overhang Ratio | Wide Overhang | Width (m) | Height (m) | Count | Area (m²) | Curtain Closed |
|------|--------------|-----------------|-------------|--------------|----------------|---------------|-----------|------------|-------|-----------|----------------|
| FW   | Window       | [1] Cavity Wall | South West  | None         | 0.00           |               |           |            |       | 3.81      |                |
| LSW  | Window       | [1] Cavity Wall | North West  | None         | 0.00           |               |           |            |       | 1.09      |                |
| RSW  | Window       | [1] Cavity Wall | South East  | None         | 0.00           |               |           |            |       | 1.09      |                |
| FGD  | Window       | [1] Cavity Wall | South West  | None         | 0.00           |               |           |            |       | 3.81      |                |
| FSD  | Solid Door   | [1] Cavity Wall | South West  |              |                |               |           |            |       | 2.11      |                |

### 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

| Source Type         | Bridge Type                                                               | Length | Psi    | Imported | Reference:   |
|---------------------|---------------------------------------------------------------------------|--------|--------|----------|--------------|
| Table K1 - Approved | E2 Other lintels (including other steel lintels)                          | 7.28   | 0.300  | No       | E2 - ACD     |
| Table K1 - Approved | E3 Sill                                                                   | 4.46   | 0.040  | No       | E3 - ACD     |
| Table K1 - Approved | E4 Jamb                                                                   | 20.72  | 0.050  | No       | E4 - ACD     |
| Table K1 - Approved | E5 Ground floor (normal)                                                  | 32.48  | 0.160  | No       | E5 - ACD     |
| Table K1 - Approved | E16 Corner (normal)                                                       | 9.60   | 0.090  | No       | E16 - ACD    |
| Table K1 - Approved | E17 Corner (inverted – internal area greater than external area)          | 4.80   | -0.090 | No       | E17 - ACD    |
| Table K1 - Approved | E18 Party wall between dwellings                                          | 4.80   | 0.060  | No       | E18 - ACD    |
| Table K1 - Default  | P1 Party wall - Ground floor                                              | 4.87   | 0.160  | No       | P1 - Default |
| Table K1 - Default  | P3 Party wall - Intermediate floor between dwellings (in blocks of flats) | 37.35  | 0.000  | No       | P3 - Default |

Y-value 0.068 W/m²K

### 18.0 Pressure Testing

Yes

Designed AP<sub>50</sub> 5.01 m³/(h.m²) @ 50 Pa

Property Tested ?

As Built AP<sub>50</sub> m³/(h.m²) @ 50 Pa

### 19.0 Mechanical Ventilation

#### Summer Overheating

Windows open in hot weather Windows half open

Cross ventilation possible Yes

Night Ventilation No

Air change rate 3.00

#### Mechanical Ventilation

Mechanical Ventilation System Present No

### 20.0 Fans, Open Fireplaces, Flues

# SUMMARY FOR INPUT DATA

## Calculation Type: New Build (As Designed)

|                              | MHS | SHS | Other | Total |
|------------------------------|-----|-----|-------|-------|
| Number of Chimneys           | 0   |     | 0     | 0     |
| Number of open flues         | 0   |     | 0     | 0     |
| Number of intermittent fans  |     |     |       | 3     |
| Number of passive vents      |     |     |       | 0     |
| Number of flueless gas fires |     |     |       | 0     |

---

**21.0 Fixed Cooling System**

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**22.0 Lighting**

**Internal**

Total number of light fittings

Total number of L.E.L. fittings

Percentage of L.E.L. fittings  %

**External**

External lights fitted

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**23.0 Electricity Tariff**

---

**24.0 Main Heating 1**

Percentage of Heat  %

Database Ref. No.

Fuel Type

Main Heating

SAP Code

In Winter

In Summer

Controls

PCDF Controls

Delayed Start Stat

Sap Code

Flue Type

Fan Assisted Flue

Is MHS Pumped

Heat Emitter

Underfloor Heating

Flow Temperature

Combi boiler type

Combi keep hot type

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**25.0 Main Heating 2**

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Community Heating

**28.0 Water Heating**

Water Heating

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery

# SUMMARY FOR INPUT DATA

## Calculation Type: New Build (As Designed)

Storage System

Solar Panel

No

Water use <= 125 litres/person/day

Yes

SAP Code

901

### 28.1 Flue Gas Heat Recovery System

### 29.0 Hot Water Cylinder

None

### 32.0 Photovoltaic Unit

One Dwelling

PV Cells kWp

1.00

Orientation

South East

Elevation

45°

Overshading

Modest

Connected to Dwelling

Yes

### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None