# Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.4.25
*Printed on 04 March 2020 at 13:23:14*

## Project Information:

**Assessed By:** Mark Heptonstall (STRO004925) **Building Type:** Flat

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 100.38m²

**Site Reference :** 10628 - 23 Ravenshaw Street **Plot Reference:** Flat A

**Address :** Flat A, 23 Ravenshaw Street, London, NW6 1NP

## Client Details:

**Name:**

**Address :**

**This report covers items included within the SAP calculations.**
**It is not a complete report of regulations compliance.**

## 1a TER and DER

Fuel for main heating system: Mains gas (c)
Fuel factor: 1.00 (mains gas (c))

| | | |
|---|---|---|
| Target Carbon Dioxide Emission Rate (TER) | 16.87 kg/m² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 13.27 kg/m² | **OK** |

## 1b TFEE and DFEE

| | | |
|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 53.2 kWh/m² | |
| Dwelling Fabric Energy Efficiency (DFEE) | 44.2 kWh/m² | |
| | | **OK** |

## 2 Fabric U-values

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.18 (max. 0.30) | 0.18 (max. 0.70) | **OK** |
| Floor | 0.15 (max. 0.25) | 0.15 (max. 0.70) | **OK** |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | **OK** |
| Openings | 1.22 (max. 2.00) | 1.30 (max. 3.30) | **OK** |

## 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

## 3 Air permeability

| | | |
|---|---|---|
| Air permeability at 50 pascals | 5.00 (design value) | |
| Maximum | 10.0 | **OK** |

## 4 Heating efficiency

| | | |
|---|---|---|
| Main Heating system: | Community heating schemes - mains gas<br>Community boilers | |
| Secondary heating system: | None | |

## 5 Cylinder insulation

| | | |
|---|---|---|
| Hot water Storage: | Measured cylinder loss: 1.81 kWh/day<br>Permitted by DBSCG: 1.89 kWh/day | **OK** |
| Primary pipework insulated: | Yes | **OK** |

## 6 Controls

| | | |
|---|---|---|
| Space heating controls | Charging system linked to use of community heating, programmer and at least two room thermostats | **OK** |
| Hot water controls: | Cylinderstat | **OK** |

# Regulations Compliance Report

| | | |
|---|---|---|
| **7 Low energy lights** | | |
| Percentage of fixed lights with low-energy fittings | 100.0% | |
| Minimum | 75.0% | **OK** |
| **8 Mechanical ventilation** | | |
| Continuous supply and extract system | | |
| Specific fan power: | 0.77 | |
| Maximum | 1.5 | **OK** |
| MVHR efficiency: | 87% | |
| Minimum | 70% | **OK** |
| **9 Summertime temperature** | | |
| Overheating risk (South England): | Slight | **OK** |
| Based on: | | |
| Overshading: | Average or unknown | |
| Windows facing: North East | 9.73m² | |
| Windows facing: South West | 11.8m² | |
| Roof windows facing: Horizontal | 4.25m² | |
| Ventilation rate: | 6.00 | |
| **10 Key features** | | |
| Thermal bridging | 0.039 W/m²K | |
| Community heating, heat from boilers – mains gas | | |
| Photovoltaic array | | |

# Predicted Energy Assessment

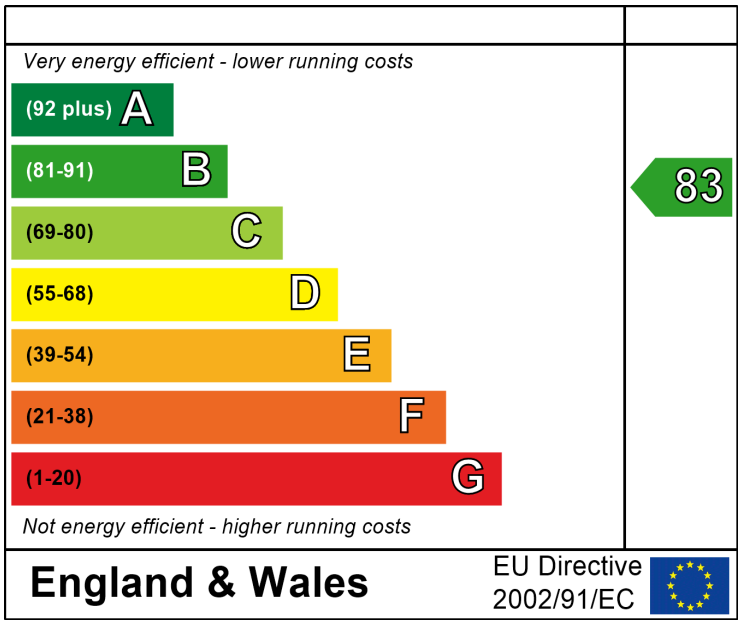
Flat A
23 Ravenshaw Street
London
NW6 1NP

| | |
|---|---|
| Dwelling type: | Ground floor Flat |
| Date of assessment: | 02 March 2020 |
| Produced by: | Mark Heptonstall |
| Total floor area: | 100.38 m² |

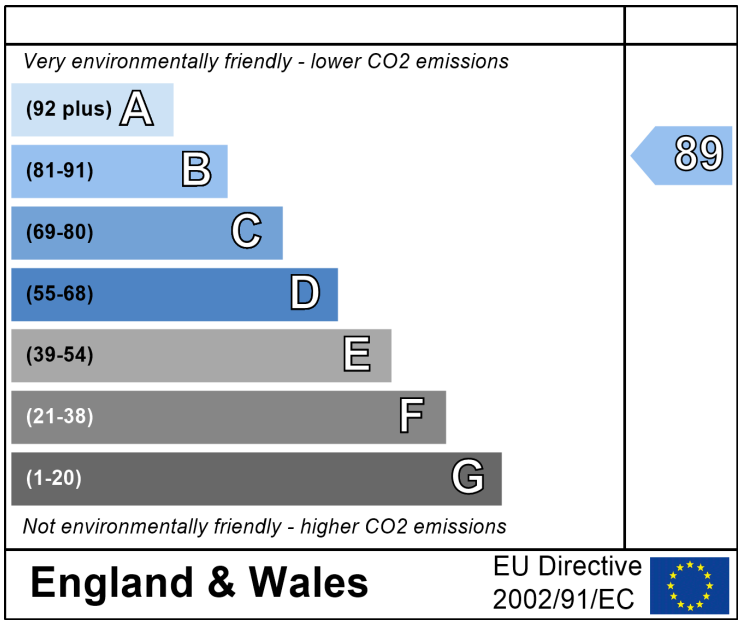
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

## Energy Efficiency Rating




## Environmental Impact ($CO_2$) 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.

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.

# Developer Confirmation Report

## Property Details: Flat A

| | |
|---|---|
| Address: | Flat A, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Thermal Mass Parameter: | Indicative Value Low |

Comments:

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |
| Front of dwelling faces: | South East |

Comments:

## Opening types:

| Name: | Type: | Frame Factor: | g-value: | U-Value: | Area: |
|---|---|---|---|---|---|
| SE | Solid | 0.7 | 0 | 1.3 | 2 |
| NE | Windows | 0.7 | 0.72 | 1.2 | 9.73 |
| SW | Windows | 0.7 | 0.72 | 1.2 | 11.8 |
| RL | Roof Windows | 0.7 | 0.72 | 1.3 | 4.25 |

Overshading: Average or unknown

Comments:

## Opaque Elements:

| Type: | U-Value: | | Kappa: |
|---|---|---|---|
| External Elements | | | |
| External Walls | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Communal | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Flat Roof | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| GF | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |

# Developer Confirmation Report

Internal Elements (Area, Kappa)
Party Elements (Area, Kappa)

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0388

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| | 26.54 | 0.07 | E22 | Basement floor |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 18 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 8.54 | 0.08 | E14 | Flat roof |

Comments:

If specific construction details have been adopted then please provide the associated checklists; signed and dated.

## Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True
Pressure test: 5
Comments:

Please provide the pressure test certificate, or certificates if the result is based on an average; signed and dated.

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

Comments:

## Main heating Control:

Main heating Control:

Charging system linked to use of community heating, programmer and at least two

# Developer Confirmation Report

room thermostats

Comments:

## Secondary heating system:

Secondary heating system: None

Comments:

## Water heating:

Water heating:
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True

Comments:

Solar panel: False

## Others:

Electricity tariff: Standard Tariff
Low energy lights: 100%
Terrain type: Low rise urban / suburban
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.73
Tilt of collector: 45°
Overshading: None or very little
Collector Orientation: South

Comments:

Please provide the MCS certificate or data sheet equivalent confirming the size of the array on the roof. This should include any calculations to support a proportioned amount included in the assessment.

## Declaration :

I confirm that the property has been built to the above specification.

# Developer Confirmation Report

Signed:

.....

Date:

.....

# SAP Input

## Property Details: Flat A

| | |
|---|---|
| Address: | Flat A, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Tenure type: | Unknown |
| Related party disclosure: | No related party |
| Thermal Mass Parameter: | Indicative Value Low |
| Water use <= 125 litres/person/day: | True |
| PCDF Version: | 456 |

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |

| Floor Location: | Floor area: | Storey height: |
|---|---|---|
| Floor 0 | 100.38 m² | 3.1 m |

| | |
|---|---|
| Living area: | 39.18 m² (fraction 0.39) |
| Front of dwelling faces: | South East |

## Opening types:

| Name: | Source: | Type: | Glazing: | Argon: | Frame: |
|---|---|---|---|---|---|
| SE | Manufacturer | Solid | | | Wood |
| NE | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| SW | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| RL | Manufacturer | Roof Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |

| **Name:** | **Gap:** | **Frame Factor:** | **g-value:** | **U-value:** | **Area:** | **No. of Openings:** |
|---|---|---|---|---|---|---|
| SE | mm | 0.7 | 0 | 1.3 | 2 | 1 |
| NE | 16mm or more | 0.7 | 0.72 | 1.2 | 9.73 | 1 |
| SW | 16mm or more | 0.7 | 0.72 | 1.2 | 11.8 | 1 |
| RL | 16mm or more | 0.7 | 0.72 | 1.3 | 4.25 | 1 |

| Name: | Type-Name: | Location: | Orient: | Width: | Height: |
|---|---|---|---|---|---|
| SE | | Communal | South East | 0 | 0 |
| NE | | External Walls | North East | 0 | 0 |
| SW | | External Walls | South West | 0 | 0 |
| RL | | Flat Roof | Horizontal | 0.001 | 0 |

| | |
|---|---|
| Overshading: | Average or unknown |

## Opaque Elements:

| Type: | Gross area: | Openings: | Net area: | U-value: | Ru value: | Curtain wall: | Kappa: |
|---|---|---|---|---|---|---|---|
| External Elements | | | | | | | |
| External Walls | 35.46 | 21.53 | 13.93 | 0.18 | 0 | False | N/A |
| Communal | 27.81 | 2 | 25.81 | 0.18 | 0 | False | N/A |
| Flat Roof | 13.93 | 4.25 | 9.68 | 0.15 | 0 | | N/A |
| GF | 100.38 | | | 0.15 | | | N/A |
| Internal Elements | | | | | | | |
| Party Elements | | | | | | | |

## Thermal bridges:

# SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0388

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
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| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 18 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 8.54 | 0.08 | E14 | Flat roof |

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Number of chimneys: 0

Number of open flues: 0

Number of fans: 0

Number of passive stacks: 0

Number of sides sheltered: 2

Pressure test: 5

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

## Main heating Control:

Main heating Control: Charging system linked to use of community heating, programmer and at least two room thermostats
Control code: 2312

## Secondary heating system:

Secondary heating system: None

## Water heating:

Water heating: From main heating system
Water code: 901
Fuel :heat from boilers – mains gas
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True
Solar panel: False

## Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

Conservatory: No conservatory

Low energy lights: 100%

Terrain type: Low rise urban / suburban

EPC language: English

Wind turbine: No

Photovoltaics: Photovoltaic 1

# SAP Input

| | |
|---|---|
| | Installed Peak power: 0.73<br>Tilt of collector: 45°<br>Overshading: None or very little<br>Collector Orientation: South |
| Assess Zero Carbon Home: | No |

# SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 04 March 2020

## Property Details: Flat A

| | |
|---|---|
| **Dwelling type:** | Flat |
| **Located in:** | England |
| **Region:** | South England |
| **Cross ventilation possible:** | Yes |
| **Number of storeys:** | 1 |
| **Front of dwelling faces:** | South East |
| **Overshading:** | Average or unknown |
| **Overhangs:** | None |
| **Thermal mass parameter:** | Indicative Value Low |
| **Night ventilation:** | False |
| **Blinds, curtains, shutters:** | |
| **Ventilation rate during hot weather (ach):** | 6 ( Windows fully open) |

## Overheating Details:

| | | |
|---|---|---|
| **Summer ventilation heat loss coefficient:** | 616.13 | **(P1)** |
| **Transmission heat loss coefficient:** | 63.1 | |
| **Summer heat loss coefficient:** | 679.19 | **(P2)** |

## Overhangs:

| **Orientation:** | **Ratio:** | **Z_overhangs:** |
|---|---|---|
| North East (NE) | 0 | 1 |
| South West (SW) | 0 | 1 |
| Horizontal (RL) | 0 | 1 |

## Solar shading:

| **Orientation:** | **Z blinds:** | **Solar access:** | **Overhangs:** | **Z summer:** | |
|---|---|---|---|---|---|
| North East (NE) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| South West (SW) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| Horizontal (RL) | 1 | 1 | 1 | 1 | **(P8)** |

## Solar gains:

| **Orientation** | | **Area** | **Flux** | **g_** | **FF** | **Shading** | **Gains** | |
|---|---|---|---|---|---|---|---|---|
| North East (NE) | 0.9 x | 9.73 | 106.05 | 0.72 | 0.7 | 0.9 | 421.25 | |
| South West (SW) | 0.9 x | 11.8 | 127.31 | 0.72 | 0.7 | 0.9 | 613.29 | |
| | 1 x | 4.25 | 217 | 0.72 | 0.7 | 1 | 418.33 | |
| | | | | | | **Total** | 1452.87 | **(P3/P4)** |

## Internal gains:

| | **June** | **July** | **August** | |
|---|---|---|---|---|
| Internal gains | 542.62 | 522.25 | 531.13 | |
| Total summer gains | 2108.97 | 1975.12 | 1803.3 | **(P5)** |
| Summer gain/loss ratio | 3.11 | 2.91 | 2.66 | **(P6)** |
| Mean summer external temperature (South England) | 15.4 | 17.3 | 17.3 | |
| Thermal mass temperature increment | 1.3 | 1.3 | 1.3 | |
| Threshold temperature | 19.81 | 21.51 | 21.26 | **(P7)** |
| **Likelihood of high internal temperature** | **Not significant** | **Slight** | **Slight** | |

**Assessment of likelihood of high internal temperature:** Slight

# Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.4.25
*Printed on 04 March 2020 at 13:23:04*

## Project Information:

**Assessed By:** Mark Heptonstall (STRO004925) **Building Type:** Flat

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 83.93m²

**Site Reference :** 10628 - 23 Ravenshaw Street **Plot Reference:** Flat B

**Address :** Flat B, 23 Ravenshaw Street, London, NW6 1NP

## Client Details:

**Name:**

**Address :**

**This report covers items included within the SAP calculations.**
**It is not a complete report of regulations compliance.**

## 1a TER and DER

Fuel for main heating system: Mains gas (c)
Fuel factor: 1.00 (mains gas (c))

| | | |
|---|---|---|
| Target Carbon Dioxide Emission Rate (TER) | 19.07 kg/m² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 15.44 kg/m² | **OK** |

## 1b TFEE and DFEE

| | | |
|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 59.2 kWh/m² | |
| Dwelling Fabric Energy Efficiency (DFEE) | 48.4 kWh/m² | |
| | | **OK** |

## 2 Fabric U-values

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.18 (max. 0.30) | 0.18 (max. 0.70) | **OK** |
| Floor | 0.15 (max. 0.25) | 0.15 (max. 0.70) | **OK** |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | **OK** |
| Openings | 1.22 (max. 2.00) | 1.30 (max. 3.30) | **OK** |

## 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

## 3 Air permeability

| | | |
|---|---|---|
| Air permeability at 50 pascals | 5.00 (design value) | |
| Maximum | 10.0 | **OK** |

## 4 Heating efficiency

| | | |
|---|---|---|
| Main Heating system: | Community heating schemes - mains gas<br>Community boilers | |
| Secondary heating system: | None | |

## 5 Cylinder insulation

| | | |
|---|---|---|
| Hot water Storage: | Measured cylinder loss: 1.81 kWh/day<br>Permitted by DBSCG: 1.89 kWh/day | **OK** |
| Primary pipework insulated: | Yes | **OK** |

## 6 Controls

| | | |
|---|---|---|
| Space heating controls | Charging system linked to use of community heating, programmer and at least two room thermostats | **OK** |
| Hot water controls: | Cylinderstat | **OK** |

# Regulations Compliance Report

| | | |
|---|---|---|
| **7 Low energy lights** | | |
| Percentage of fixed lights with low-energy fittings | 100.0% | |
| Minimum | 75.0% | **OK** |
| **8 Mechanical ventilation** | | |
| Continuous supply and extract system | | |
| Specific fan power: | 0.77 | |
| Maximum | 1.5 | **OK** |
| MVHR efficiency: | 87% | |
| Minimum | 70% | **OK** |
| **9 Summertime temperature** | | |
| Overheating risk (South England): | Slight | **OK** |
| Based on: | | |
| Overshading: | Average or unknown | |
| Windows facing: South West | 7.06m² | |
| Windows facing: North East | 10.3m² | |
| Roof windows facing: Horizontal | 2.34m² | |
| Ventilation rate: | 6.00 | |
| **10 Key features** | | |
| Thermal bridging | 0.039 W/m²K | |
| Community heating, heat from boilers – mains gas | | |
| Photovoltaic array | | |

# Predicted Energy Assessment

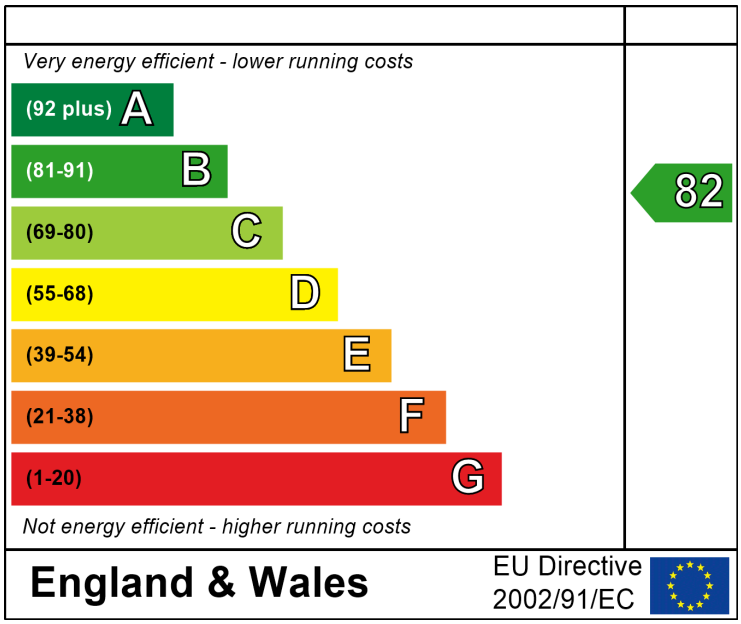
Flat B
23 Ravenshaw Street
London
NW6 1NP

Dwelling type: Ground floor Flat
Date of assessment: 02 March 2020
Produced by: Mark Heptonstall
Total floor area: 83.93 m$^2$

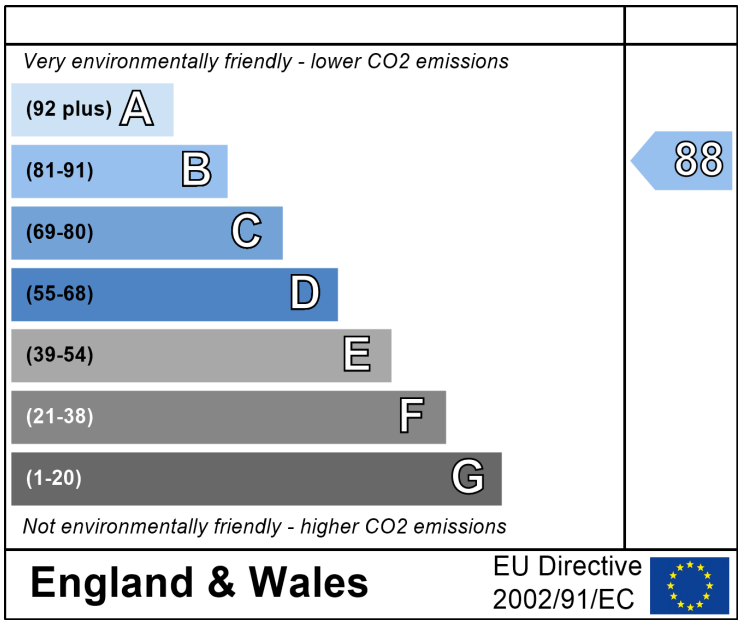
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

## Energy Efficiency Rating




## Environmental Impact ($CO_2$) 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.

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.

# Developer Confirmation Report

## Property Details: Flat B

| | |
|---|---|
| Address: | Flat B, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Thermal Mass Parameter: | Indicative Value Low |

Comments:

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |
| Front of dwelling faces: | North West |

Comments:

## Opening types:

| Name: | Type: | Frame Factor: | g-value: | U-Value: | Area: |
|---|---|---|---|---|---|
| NW | Solid | 0.7 | 0 | 1.3 | 2 |
| NE | Windows | 0.7 | 0.72 | 1.2 | 7.06 |
| SW | Windows | 0.7 | 0.72 | 1.2 | 10.3 |
| Flat Roof | Roof Windows | 0.7 | 0.72 | 1.3 | 2.34 |

Overshading: Average or unknown

Comments:

## Opaque Elements:

| Type: | U-Value: | | Kappa: |
|---|---|---|---|
| External Elements | | | |
| External Walls | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Communal | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Flat Roof | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| GF | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |

# Developer Confirmation Report

Internal Elements (Area, Kappa)
Party Elements (Area, Kappa)

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.039

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| | 26.54 | 0.07 | E22 | Basement floor |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 19.73 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 6.81 | 0.08 | E14 | Flat roof |

Comments:

If specific construction details have been adopted then please provide the associated checklists; signed and dated.

## Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True
Pressure test: 5
Comments:

Please provide the pressure test certificate, or certificates if the result is based on an average; signed and dated.

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

Comments:

## Main heating Control:

Main heating Control:

Charging system linked to use of community heating, programmer and at least two

# Developer Confirmation Report

room thermostats

Comments:

## Secondary heating system:

Secondary heating system: None

Comments:

## Water heating:

Water heating:
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True

Comments:

Solar panel: False

## Others:

Electricity tariff: Standard Tariff
Low energy lights: 100%
Terrain type: Low rise urban / suburban
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.61
Tilt of collector: 45°
Overshading: None or very little
Collector Orientation: South

Comments:

Please provide the MCS certificate or data sheet equivalent confirming the size of the array on the roof. This should include any calculations to support a proportioned amount included in the assessment.

## Declaration :

I confirm that the property has been built to the above specification.

# Developer Confirmation Report

Signed:

.....

Date:

.....

# SAP Input

## Property Details: Flat B

| | |
|---|---|
| Address: | Flat B, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Tenure type: | Unknown |
| Related party disclosure: | No related party |
| Thermal Mass Parameter: | Indicative Value Low |
| Water use <= 125 litres/person/day: | True |
| PCDF Version: | 456 |

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |

| Floor Location: | Floor area: | Storey height: |
|---|---|---|
| Floor 0 | 83.93 m² | 3.1 m |

| | |
|---|---|
| Living area: | 46.47 m² (fraction 0.554) |
| Front of dwelling faces: | North West |

## Opening types:

| Name: | Source: | Type: | Glazing: | Argon: | Frame: |
|---|---|---|---|---|---|
| NW | Manufacturer | Solid | | | Wood |
| NE | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| SW | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| Flat Roof | Manufacturer | Roof Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |

| **Name:** | **Gap:** | **Frame Factor:** | **g-value:** | **U-value:** | **Area:** | **No. of Openings:** |
|---|---|---|---|---|---|---|
| NW | mm | 0.7 | 0 | 1.3 | 2 | 1 |
| NE | 16mm or more | 0.7 | 0.72 | 1.2 | 7.06 | 1 |
| SW | 16mm or more | 0.7 | 0.72 | 1.2 | 10.3 | 1 |
| Flat Roof | 16mm or more | 0.7 | 0.72 | 1.3 | 2.34 | 1 |

| Name: | Type-Name: | Location: | Orient: | Width: | Height: |
|---|---|---|---|---|---|
| NW | | Communal | North West | 0 | 0 |
| NE | | External Walls | South West | 0 | 0 |
| SW | | External Walls | North East | 0 | 0 |
| Flat Roof | | Flat Roof | Horizontal | 0.001 | 0 |

| | |
|---|---|
| Overshading: | Average or unknown |

## Opaque Elements:

| Type: | Gross area: | Openings: | Net area: | U-value: | Ru value: | Curtain wall: | Kappa: |
|---|---|---|---|---|---|---|---|
| External Elements | | | | | | | |
| External Walls | 50.13 | 17.36 | 32.77 | 0.18 | 0 | False | N/A |
| Communal | 36.18 | 2 | 34.18 | 0.18 | 0 | False | N/A |
| Flat Roof | 6.1 | 2.34 | 3.76 | 0.15 | 0 | | N/A |
| GF | 83.93 | | | 0.15 | | | N/A |
| Internal Elements | | | | | | | |
| Party Elements | | | | | | | |

## Thermal bridges:

# SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.039

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| | 26.54 | 0.07 | E22 | Basement floor |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 19.73 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 6.81 | 0.08 | E14 | Flat roof |

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Number of chimneys: 0

Number of open flues: 0

Number of fans: 0

Number of passive stacks: 0

Number of sides sheltered: 2

Pressure test: 5

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

## Main heating Control:

Main heating Control: Charging system linked to use of community heating, programmer and at least two room thermostats
Control code: 2312

## Secondary heating system:

Secondary heating system: None

## Water heating:

Water heating: From main heating system
Water code: 901
Fuel :heat from boilers – mains gas
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True
Solar panel: False

## Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

Conservatory: No conservatory

Low energy lights: 100%

Terrain type: Low rise urban / suburban

EPC language: English

Wind turbine: No

Photovoltaics: Photovoltaic 1

# SAP Input

| | |
|---|---|
| | Installed Peak power: 0.61<br>Tilt of collector: 45°<br>Overshading: None or very little<br>Collector Orientation: South |
| Assess Zero Carbon Home: | No |

# SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 04 March 2020

## Property Details: Flat B

| | |
|---|---|
| **Dwelling type:** | Flat |
| **Located in:** | England |
| **Region:** | South England |
| **Cross ventilation possible:** | Yes |
| **Number of storeys:** | 1 |
| **Front of dwelling faces:** | North West |
| **Overshading:** | Average or unknown |
| **Overhangs:** | None |
| **Thermal mass parameter:** | Indicative Value Low |
| **Night ventilation:** | False |
| **Blinds, curtains, shutters:** | |
| **Ventilation rate during hot weather (ach):** | 6 ( Windows fully open) |

## Overheating Details:

| | | |
|---|---|---|
| **Summer ventilation heat loss coefficient:** | 515.16 | **(P1)** |
| **Transmission heat loss coefficient:** | 57.4 | |
| **Summer heat loss coefficient:** | 572.61 | **(P2)** |

## Overhangs:

| **Orientation:** | **Ratio:** | **Z_overhangs:** |
|---|---|---|
| South West (NE) | 0 | 1 |
| North East (SW) | 0 | 1 |
| Horizontal (Flat Roof) | 0 | 1 |

## Solar shading:

| **Orientation:** | **Z blinds:** | **Solar access:** | **Overhangs:** | **Z summer:** | |
|---|---|---|---|---|---|
| South West (NE) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| North East (SW) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| Horizontal (Flat Roof) | 1 | 1 | 1 | 1 | **(P8)** |

## Solar gains:

| **Orientation** | | **Area** | **Flux** | **g_** | **FF** | **Shading** | **Gains** | |
|---|---|---|---|---|---|---|---|---|
| South West (NE) | 0.9 x | 7.06 | 127.31 | 0.72 | 0.7 | 0.9 | 366.93 | |
| North East (SW) | 0.9 x | 10.3 | 106.05 | 0.72 | 0.7 | 0.9 | 445.93 | |
| | 1 x | 2.34 | 217 | 0.72 | 0.7 | 1 | 230.33 | |
| | | | | | | **Total** | 1043.19 | **(P3/P4)** |

## Internal gains:

| | **June** | **July** | **August** | |
|---|---|---|---|---|
| Internal gains | 497.38 | 479.02 | 487.3 | |
| Total summer gains | 1624.95 | 1522.21 | 1390.15 | **(P5)** |
| Summer gain/loss ratio | 2.84 | 2.66 | 2.43 | **(P6)** |
| Mean summer external temperature (South England) | 15.4 | 17.3 | 17.3 | |
| Thermal mass temperature increment | 1.3 | 1.3 | 1.3 | |
| Threshold temperature | 19.54 | 21.26 | 21.03 | **(P7)** |
| **Likelihood of high internal temperature** | **Not significant** | **Slight** | **Slight** | |

**Assessment of likelihood of high internal temperature:** Slight

# Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.4.25
*Printed on 04 March 2020 at 13:22:53*

## Project Information:

**Assessed By:** Mark Heptonstall (STRO004925) **Building Type:** Flat

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 74.61m²

**Site Reference :** 10628 - 23 Ravenshaw Street **Plot Reference:** Flat C

**Address :** Flat C, 23 Ravenshaw Street, London, NW6 1NP

## Client Details:

**Name:**

**Address :**

**This report covers items included within the SAP calculations.**
**It is not a complete report of regulations compliance.**

## 1a TER and DER

Fuel for main heating system: Mains gas (c)
Fuel factor: 1.00 (mains gas (c))

| | | |
|---|---|---|
| Target Carbon Dioxide Emission Rate (TER) | 16.85 kg/m² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 13.19 kg/m² | **OK** |

## 1b TFEE and DFEE

| | | |
|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 43.7 kWh/m² | |
| Dwelling Fabric Energy Efficiency (DFEE) | 36.3 kWh/m² | |
| | | **OK** |

## 2 Fabric U-values

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.18 (max. 0.30) | 0.18 (max. 0.70) | **OK** |
| Floor | (no floor) | | |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | **OK** |
| Openings | 1.22 (max. 2.00) | 1.30 (max. 3.30) | **OK** |

## 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

## 3 Air permeability

| | | |
|---|---|---|
| Air permeability at 50 pascals | 5.00 (design value) | |
| Maximum | 10.0 | **OK** |

## 4 Heating efficiency

| | | |
|---|---|---|
| Main Heating system: | Community heating schemes - mains gas<br>Community boilers | |
| Secondary heating system: | None | |

## 5 Cylinder insulation

| | | |
|---|---|---|
| Hot water Storage: | Measured cylinder loss: 1.81 kWh/day<br>Permitted by DBSCG: 1.89 kWh/day | **OK** |
| Primary pipework insulated: | Yes | **OK** |

## 6 Controls

| | | |
|---|---|---|
| Space heating controls | Charging system linked to use of community heating, programmer and at least two room thermostats | **OK** |
| Hot water controls: | Cylinderstat | **OK** |

# Regulations Compliance Report

## 7 Low energy lights

| | | |
|---|---|---|
| Percentage of fixed lights with low-energy fittings | 100.0% | |
| Minimum | 75.0% | **OK** |

## 8 Mechanical ventilation

| | | |
|---|---|---|
| Continuous supply and extract system | | |
| Specific fan power: | 0.77 | |
| Maximum | 1.5 | **OK** |
| MVHR efficiency: | 87% | |
| Minimum | 70% | **OK** |

## 9 Summertime temperature

| | | |
|---|---|---|
| Overheating risk (South England): | Slight | **OK** |

Based on:

| | |
|---|---|
| Overshading: | Average or unknown |
| Windows facing: North East | 2.63m² |
| Windows facing: South West | 8.88m² |
| Roof windows facing: Horizontal | 0.6m² |
| Ventilation rate: | 6.00 |

## 10 Key features

Community heating, heat from boilers – mains gas

Photovoltaic array

# Predicted Energy Assessment

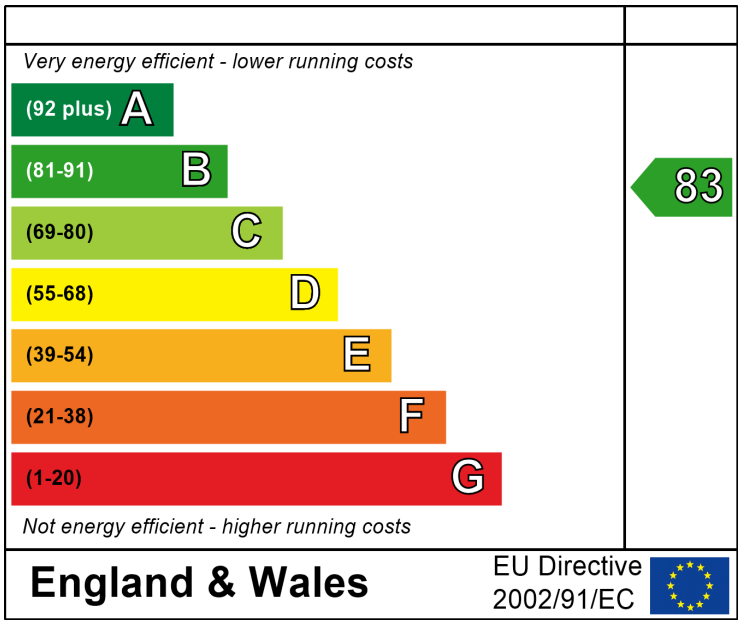
Flat C
23 Ravenshaw Street
London
NW6 1NP

Dwelling type: Mid floor Flat
Date of assessment: 02 March 2020
Produced by: Mark Heptonstall
Total floor area: 74.61 m²

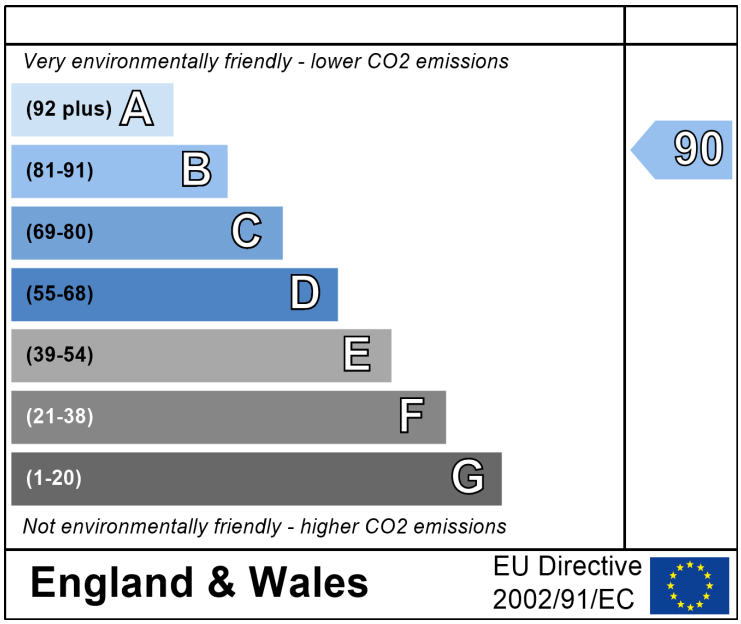
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

## Energy Efficiency Rating




## Environmental Impact ($CO_2$) 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.

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.

# Developer Confirmation Report

## Property Details: Flat C

| | |
|---|---|
| Address: | Flat C, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Thermal Mass Parameter: | Indicative Value Low |

Comments:

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |
| Front of dwelling faces: | North East |

Comments:

## Opening types:

| Name: | Type: | Frame Factor: | g-value: | U-Value: | Area: |
|---|---|---|---|---|---|
| NE | Solid | 0.7 | 0 | 1.3 | 2 |
| NE | Windows | 0.7 | 0.72 | 1.2 | 2.63 |
| SW | Windows | 0.7 | 0.72 | 1.2 | 8.88 |
| Flat Roof | Roof Windows | 0.7 | 0.72 | 1.3 | 0.6 |

Overshading: Average or unknown

Comments:

## Opaque Elements:

| Type: | U-Value: | | Kappa: |
|---|---|---|---|
| External Elements | | | |
| External Walls | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Communal | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Flat Roof | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Internal Elements (Area, Kappa) | | | |

# Developer Confirmation Report

Party Elements (Area, Kappa)

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0632

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 44.54 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 8.54 | 0.08 | E14 | Flat roof |

Comments:

If specific construction details have been adopted then please provide the associated checklists; signed and dated.

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Pressure test: 5

Comments:

Please provide the pressure test certificate, or certificates if the result is based on an average; signed and dated.

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

Comments:

## Main heating Control:

Main heating Control:

Charging system linked to use of community heating, programmer and at least two room thermostats

Comments:

# Developer Confirmation Report

## Secondary heating system:

Secondary heating system: None

Comments:

## Water heating:

Water heating: Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True

Comments:

Solar panel: False

## Others:

Electricity tariff: Standard Tariff
Low energy lights: 100%
Terrain type: Low rise urban / suburban
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.54
Tilt of collector: 45°
Overshading: None or very little
Collector Orientation: South

Comments:

Please provide the MCS certificate or data sheet equivalent confirming the size of the array on the roof. This should include any calculations to support a proportioned amount included in the assessment.

## Declaration :

I confirm that the property has been built to the above specification.

Signed:

.....

Date:

.....

# SAP Input

## Property Details: Flat C

| | |
|---|---|
| Address: | Flat C, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Tenure type: | Unknown |
| Related party disclosure: | No related party |
| Thermal Mass Parameter: | Indicative Value Low |
| Water use <= 125 litres/person/day: | True |
| PCDF Version: | 456 |

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |

| Floor Location: | Floor area: | Storey height: |
|---|---|---|
| Floor 0 | 74.61 m² | 2.5 m |

| | |
|---|---|
| Living area: | 39.99 m² (fraction 0.536) |
| Front of dwelling faces: | North East |

## Opening types:

| Name: | Source: | Type: | Glazing: | Argon: | Frame: |
|---|---|---|---|---|---|
| NE | Manufacturer | Solid | | | Wood |
| NE | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| SW | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| Flat Roof | Manufacturer | Roof Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |

| **Name:** | **Gap:** | **Frame Factor:** | **g-value:** | **U-value:** | **Area:** | **No. of Openings:** |
|---|---|---|---|---|---|---|
| NE | mm | 0.7 | 0 | 1.3 | 2 | 1 |
| NE | 16mm or more | 0.7 | 0.72 | 1.2 | 2.63 | 1 |
| SW | 16mm or more | 0.7 | 0.72 | 1.2 | 8.88 | 1 |
| Flat Roof | 16mm or more | 0.7 | 0.72 | 1.3 | 0.6 | 1 |

| Name: | Type-Name: | Location: | Orient: | Width: | Height: |
|---|---|---|---|---|---|
| NE | | Communal | North East | 0 | 0 |
| NE | | External Walls | North East | 0 | 0 |
| SW | | External Walls | South West | 0 | 0 |
| Flat Roof | | Flat Roof | Horizontal | 0.001 | 0 |

| | |
|---|---|
| Overshading: | Average or unknown |

## Opaque Elements:

| Type: | Gross area: | Openings: | Net area: | U-value: | Ru value: | Curtain wall: | Kappa: |
|---|---|---|---|---|---|---|---|
| External Elements | | | | | | | |
| External Walls | 51.87 | 11.51 | 40.36 | 0.18 | 0 | False | N/A |
| Communal | 34.7 | 2 | 32.7 | 0.18 | 0 | False | N/A |
| Flat Roof | 22.5 | 0.6 | 21.9 | 0.15 | 0 | | N/A |
| Internal Elements | | | | | | | |
| Party Elements | | | | | | | |

## Thermal bridges:

# SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0632

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 44.54 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 8.54 | 0.08 | E14 | Flat roof |

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Number of chimneys: 0
Number of open flues: 0
Number of fans: 0
Number of passive stacks: 0
Number of sides sheltered: 2
Pressure test: 5

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

## Main heating Control:

Main heating Control: Charging system linked to use of community heating, programmer and at least two room thermostats
Control code: 2312

## Secondary heating system:

Secondary heating system: None

## Water heating:

Water heating: From main heating system
Water code: 901
Fuel :heat from boilers – mains gas
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True
Solar panel: False

## Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Low rise urban / suburban
EPC language: English
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.54

# SAP Input

| | |
|---|---|
| | Tilt of collector: 45°<br>Overshading: None or very little<br>Collector Orientation: South |
| Assess Zero Carbon Home: | No |

# SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 04 March 2020

## Property Details: Flat C

| | |
|---|---|
| **Dwelling type:** | Flat |
| **Located in:** | England |
| **Region:** | South England |
| **Cross ventilation possible:** | Yes |
| **Number of storeys:** | 1 |
| **Front of dwelling faces:** | North East |
| **Overshading:** | Average or unknown |
| **Overhangs:** | None |
| **Thermal mass parameter:** | Indicative Value Low |
| **Night ventilation:** | False |
| **Blinds, curtains, shutters:** | |
| **Ventilation rate during hot weather (ach):** | 6 ( Windows fully open) |

## Overheating Details:

| | | |
|---|---|---|
| **Summer ventilation heat loss coefficient:** | 369.32 | **(P1)** |
| **Transmission heat loss coefficient:** | 39.8 | |
| **Summer heat loss coefficient:** | 409.17 | **(P2)** |

## Overhangs:

| **Orientation:** | **Ratio:** | **Z_overhangs:** |
|---|---|---|
| North East (NE) | 0 | 1 |
| South West (SW) | 0 | 1 |
| Horizontal (Flat Roof) | 0 | 1 |

## Solar shading:

| **Orientation:** | **Z blinds:** | **Solar access:** | **Overhangs:** | **Z summer:** | |
|---|---|---|---|---|---|
| North East (NE) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| South West (SW) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| Horizontal (Flat Roof) | 1 | 1 | 1 | 1 | **(P8)** |

## Solar gains:

| **Orientation** | | **Area** | **Flux** | **g_** | **FF** | **Shading** | **Gains** | |
|---|---|---|---|---|---|---|---|---|
| North East (NE) | 0.9 x | 2.63 | 106.05 | 0.72 | 0.7 | 0.9 | 113.86 | |
| South West (SW) | 0.9 x | 8.88 | 127.31 | 0.72 | 0.7 | 0.9 | 461.53 | |
| | 1 x | 0.6 | 217 | 0.72 | 0.7 | 1 | 59.06 | |
| | | | | | | **Total** | 634.45 | **(P3/P4)** |

## Internal gains:

| | **June** | **July** | **August** | |
|---|---|---|---|---|
| Internal gains | 466.26 | 449.35 | 457.36 | |
| Total summer gains | 1145.9 | 1083.8 | 1030.39 | **(P5)** |
| Summer gain/loss ratio | 2.8 | 2.65 | 2.52 | **(P6)** |
| Mean summer external temperature (South England) | 15.4 | 17.3 | 17.3 | |
| Thermal mass temperature increment | 1.3 | 1.3 | 1.3 | |
| Threshold temperature | 19.5 | 21.25 | 21.12 | **(P7)** |
| **Likelihood of high internal temperature** | **Not significant** | **Slight** | **Slight** | |

**Assessment of likelihood of high internal temperature:** Slight

# Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.4.25
*Printed on 04 March 2020 at 13:22:42*

## Project Information:

**Assessed By:** Mark Heptonstall (STRO004925) **Building Type:** Flat

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 68.58m²

**Site Reference :** 10628 - 23 Ravenshaw Street **Plot Reference:** Flat D

**Address :** Flat D, 23 Ravenshaw Street, London, NW6 1NP

## Client Details:

**Name:**

**Address :**

**This report covers items included within the SAP calculations.**
**It is not a complete report of regulations compliance.**

## 1a TER and DER

Fuel for main heating system: Mains gas (c)
Fuel factor: 1.00 (mains gas (c))

| | | |
|---|---|---|
| Target Carbon Dioxide Emission Rate (TER) | 17.39 kg/m² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 13.84 kg/m² | **OK** |

## 1b TFEE and DFEE

| | | |
|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 43.4 kWh/m² | |
| Dwelling Fabric Energy Efficiency (DFEE) | 35.8 kWh/m² | |
| | | **OK** |

## 2 Fabric U-values

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.18 (max. 0.30) | 0.18 (max. 0.70) | **OK** |
| Floor | (no floor) | | |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | **OK** |
| Openings | 1.22 (max. 2.00) | 1.30 (max. 3.30) | **OK** |

## 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

## 3 Air permeability

| | | |
|---|---|---|
| Air permeability at 50 pascals | 5.00 (design value) | |
| Maximum | 10.0 | **OK** |

## 4 Heating efficiency

| | | |
|---|---|---|
| Main Heating system: | Community heating schemes - mains gas<br>Community boilers | |
| Secondary heating system: | None | |

## 5 Cylinder insulation

| | | |
|---|---|---|
| Hot water Storage: | Measured cylinder loss: 1.81 kWh/day<br>Permitted by DBSCG: 1.89 kWh/day | **OK** |
| Primary pipework insulated: | Yes | **OK** |

## 6 Controls

| | | |
|---|---|---|
| Space heating controls | Charging system linked to use of community heating, programmer and at least two room thermostats | **OK** |
| Hot water controls: | Cylinderstat | **OK** |

# Regulations Compliance Report

## 7 Low energy lights

| | | |
|---|---|---|
| Percentage of fixed lights with low-energy fittings | 100.0% | |
| Minimum | 75.0% | **OK** |

## 8 Mechanical ventilation

| | | |
|---|---|---|
| Continuous supply and extract system | | |
| Specific fan power: | 0.77 | |
| Maximum | 1.5 | **OK** |
| MVHR efficiency: | 87% | |
| Minimum | 70% | **OK** |

## 9 Summertime temperature

| | | |
|---|---|---|
| Overheating risk (South England): | Slight | **OK** |

Based on:

| | |
|---|---|
| Overshading: | Average or unknown |
| Windows facing: North East | 2.63m² |
| Windows facing: South West | 6.32m² |
| Ventilation rate: | 6.00 |

## 10 Key features

Community heating, heat from boilers – mains gas

Photovoltaic array

# Predicted Energy Assessment

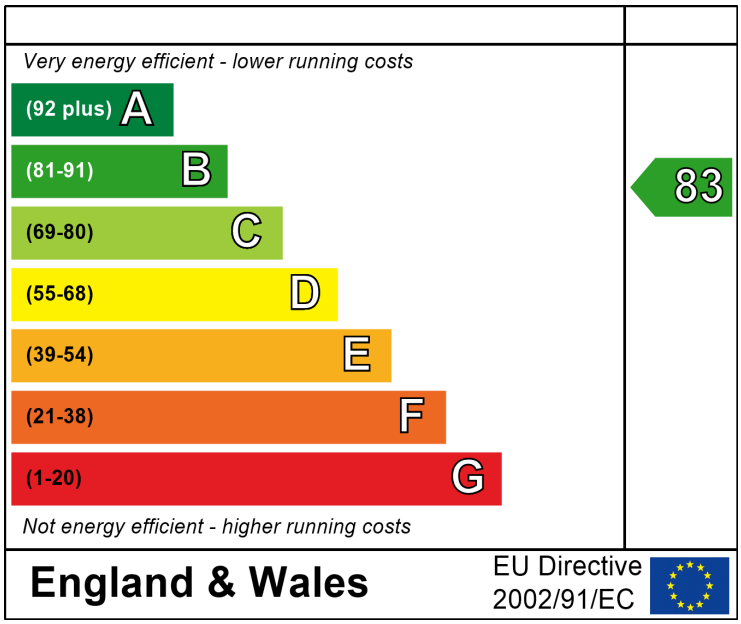
Flat D
23 Ravenshaw Street
London
NW6 1NP

Dwelling type: Mid floor Flat
Date of assessment: 02 March 2020
Produced by: Mark Heptonstall
Total floor area: 68.58 m²

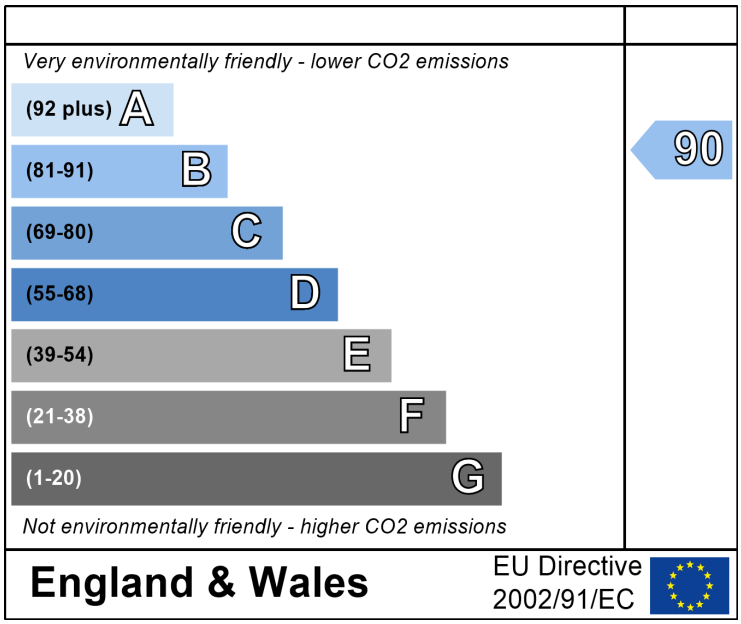
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

## Energy Efficiency Rating




## Environmental Impact ($CO_2$) 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.

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.

# Developer Confirmation Report

## Property Details: Flat D

| | |
|---|---|
| Address: | Flat D, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Thermal Mass Parameter: | Indicative Value Low |

Comments:

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |
| Front of dwelling faces: | North West |

Comments:

## Opening types:

| Name: | Type: | Frame Factor: | g-value: | U-Value: | Area: |
|---|---|---|---|---|---|
| NW | Solid | 0.7 | 0 | 1.3 | 2 |
| NE | Windows | 0.7 | 0.72 | 1.2 | 2.63 |
| SW | Windows | 0.7 | 0.72 | 1.2 | 6.32 |

Overshading: Average or unknown

Comments:

## Opaque Elements:

| Type: | U-Value: | | Kappa: |
|---|---|---|---|
| External Elements | | | |
| External Walls | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Communal | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Flat Roof | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Internal Elements (Area, Kappa) | | | |
| Party Elements (Area, Kappa) | | | |

# Developer Confirmation Report

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0699

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 44.54 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 8.54 | 0.08 | E14 | Flat roof |

Comments:

If specific construction details have been adopted then please provide the associated checklists; signed and dated.

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Pressure test: 5

Comments:

Please provide the pressure test certificate, or certificates if the result is based on an average; signed and dated.

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

Comments:

## Main heating Control:

Main heating Control:

Charging system linked to use of community heating, programmer and at least two room thermostats

Comments:

# Developer Confirmation Report

## Secondary heating system:

Secondary heating system: None

Comments:

## Water heating:

Water heating: Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True

Comments:

Solar panel: False

## Others:

Electricity tariff: Standard Tariff
Low energy lights: 100%
Terrain type: Low rise urban / suburban
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.5
Tilt of collector: 45°
Overshading: None or very little
Collector Orientation: South

Comments:

Please provide the MCS certificate or data sheet equivalent confirming the size of the array on the roof. This should include any calculations to support a proportioned amount included in the assessment.

## Declaration :

I confirm that the property has been built to the above specification.

Signed:

.....

Date:

.....

# SAP Input

## Property Details: Flat D

| | |
|---|---|
| Address: | Flat D, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Tenure type: | Unknown |
| Related party disclosure: | No related party |
| Thermal Mass Parameter: | Indicative Value Low |
| Water use <= 125 litres/person/day: | True |
| PCDF Version: | 456 |

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |

| Floor Location: | Floor area: | Storey height: |
|---|---|---|
| Floor 0 | 68.58 m² | 2.5 m |

| | |
|---|---|
| Living area: | 36.1 m² (fraction 0.526) |
| Front of dwelling faces: | North West |

## Opening types:

| Name: | Source: | Type: | Glazing: | Argon: | Frame: |
|---|---|---|---|---|---|
| NW | Manufacturer | Solid | | | Wood |
| NE | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| SW | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |

| **Name:** | **Gap:** | **Frame Factor:** | **g-value:** | **U-value:** | **Area:** | **No. of Openings:** |
|---|---|---|---|---|---|---|
| NW | mm | 0.7 | 0 | 1.3 | 2 | 1 |
| NE | 16mm or more | 0.7 | 0.72 | 1.2 | 2.63 | 1 |
| SW | 16mm or more | 0.7 | 0.72 | 1.2 | 6.32 | 1 |

| Name: | Type-Name: | Location: | Orient: | Width: | Height: |
|---|---|---|---|---|---|
| NW | | Communal | North West | 0 | 0 |
| NE | | External Walls | North East | 0 | 0 |
| SW | | External Walls | South West | 0 | 0 |

| | |
|---|---|
| Overshading: | Average or unknown |

## Opaque Elements:

| Type: | Gross area: | Openings: | Net area: | U-value: | Ru value: | Curtain wall: | Kappa: |
|---|---|---|---|---|---|---|---|
| External Elements | | | | | | | |
| External Walls | 59.77 | 8.95 | 50.82 | 0.18 | 0 | False | N/A |
| Communal | 30.7 | 2 | 28.7 | 0.18 | 0 | False | N/A |
| Flat Roof | 8.1 | 0 | 8.1 | 0.15 | 0 | | N/A |
| Internal Elements | | | | | | | |
| Party Elements | | | | | | | |

## Thermal bridges:

| | | | | |
|---|---|---|---|---|
| Thermal bridges: | User-defined (individual PSI-values) Y-Value = 0.0699 | | | |
| | **Length** | **Psi-value** | | |
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |

# SAP Input

| | | | | |
|---|---|---|---|---|
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| [Approved] | 44.54 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| | 8.54 | 0.08 | E14 | Flat roof |

## Ventilation:

| | |
|---|---|
| Pressure test: | Yes (As designed) |
| Ventilation: | Balanced with heat recovery<br>Number of wet rooms: Kitchen + 3<br>Ductwork: Insulation, rigid<br>Approved Installation Scheme: True |
| Number of chimneys: | 0 |
| Number of open flues: | 0 |
| Number of fans: | 0 |
| Number of passive stacks: | 0 |
| Number of sides sheltered: | 2 |
| Pressure test: | 5 |

## Main heating system:

| | |
|---|---|
| Main heating system: | Community heating schemes<br>Heat source: Community boilers<br>heat from boilers – mains gas, heat fraction 1, efficiency 90<br>Piping>=1991, pre-insulated, low temp, variable flow |

## Main heating Control:

| | |
|---|---|
| Main heating Control: | Charging system linked to use of community heating, programmer and at least two room thermostats<br>Control code: 2312 |

## Secondary heating system:

| | |
|---|---|
| Secondary heating system: | None |

## Water heating:

| | |
|---|---|
| Water heating: | From main heating system<br>Water code: 901<br>Fuel :heat from boilers – mains gas<br>Hot water cylinder<br>Cylinder volume: 150 litres<br>Cylinder insulation: Measured loss, 1.81kWh/day<br>Primary pipework insulation: True<br>Cylinderstat: True<br>Cylinder in heated space: True<br>Solar panel: False |

## Others:

| | |
|---|---|
| Electricity tariff: | Standard Tariff |
| In Smoke Control Area: | Unknown |
| Conservatory: | No conservatory |
| Low energy lights: | 100% |
| Terrain type: | Low rise urban / suburban |
| EPC language: | English |
| Wind turbine: | No |
| Photovoltaics: | Photovoltaic 1<br>Installed Peak power: 0.5<br>Tilt of collector: 45°<br>Overshading: None or very little<br>Collector Orientation: South |

# SAP Input

| | |
|---|---|
| Assess Zero Carbon Home: | No |

# SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 04 March 2020

## Property Details: Flat D

| | |
|---|---|
| **Dwelling type:** | Flat |
| **Located in:** | England |
| **Region:** | South England |
| **Cross ventilation possible:** | Yes |
| **Number of storeys:** | 1 |
| **Front of dwelling faces:** | North West |
| **Overshading:** | Average or unknown |
| **Overhangs:** | None |
| **Thermal mass parameter:** | Indicative Value Low |
| **Night ventilation:** | False |
| **Blinds, curtains, shutters:** | |
| **Ventilation rate during hot weather (ach):** | 6 ( Windows fully open) |

## Overheating Details:

| | | |
|---|---|---|
| **Summer ventilation heat loss coefficient:** | 339.47 | **(P1)** |
| **Transmission heat loss coefficient:** | 35.3 | |
| **Summer heat loss coefficient:** | 374.74 | **(P2)** |

## Overhangs:

| **Orientation:** | **Ratio:** | **Z_overhangs:** |
|---|---|---|
| North East (NE) | 0 | 1 |
| South West (SW) | 0 | 1 |

## Solar shading:

| **Orientation:** | **Z blinds:** | **Solar access:** | **Overhangs:** | **Z summer:** | |
|---|---|---|---|---|---|
| North East (NE) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| South West (SW) | 1 | 0.9 | 1 | 0.9 | **(P8)** |

## Solar gains:

| **Orientation** | | **Area** | **Flux** | **g_** | **FF** | **Shading** | **Gains** | |
|---|---|---|---|---|---|---|---|---|
| North East (NE) | 0.9 x | 2.63 | 106.05 | 0.72 | 0.7 | 0.9 | 113.86 | |
| South West (SW) | 0.9 x | 6.32 | 127.31 | 0.72 | 0.7 | 0.9 | 328.47 | |
| | | | | | | **Total** | 442.34 | **(P3/P4)** |

## Internal gains:

| | **June** | **July** | **August** | |
|---|---|---|---|---|
| Internal gains | 444.08 | 428.22 | 436.11 | |
| Total summer gains | 918.16 | 870.55 | 834.98 | **(P5)** |
| Summer gain/loss ratio | 2.45 | 2.32 | 2.23 | **(P6)** |
| Mean summer external temperature (South England) | 15.4 | 17.3 | 17.3 | |
| Thermal mass temperature increment | 1.3 | 1.3 | 1.3 | |
| Threshold temperature | 19.15 | 20.92 | 20.83 | **(P7)** |
| **Likelihood of high internal temperature** | **Not significant** | **Slight** | **Slight** | |

**Assessment of likelihood of high internal temperature:** Slight

# Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.4.25
*Printed on 04 March 2020 at 13:22:31*

## Project Information:

**Assessed By:** Mark Heptonstall (STRO004925) **Building Type:** Flat

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 71.86m²

**Site Reference :** 10628 - 23 Ravenshaw Street **Plot Reference:** Flat E

**Address :** Flat E, 23 Ravenshaw Street, London, NW6 1NP

## Client Details:

**Name:**

**Address :**

**This report covers items included within the SAP calculations.**
**It is not a complete report of regulations compliance.**

## 1a TER and DER

Fuel for main heating system: Mains gas (c)
Fuel factor: 1.00 (mains gas (c))

| | | |
|---|---|---|
| Target Carbon Dioxide Emission Rate (TER) | 17.15 kg/m² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 13.43 kg/m² | **OK** |

## 1b TFEE and DFEE

| | | |
|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 43.2 kWh/m² | |
| Dwelling Fabric Energy Efficiency (DFEE) | 35.7 kWh/m² | |
| | | **OK** |

## 2 Fabric U-values

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.18 (max. 0.30) | 0.18 (max. 0.70) | **OK** |
| Floor | (no floor) | | |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | **OK** |
| Openings | 1.22 (max. 2.00) | 1.30 (max. 3.30) | **OK** |

## 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

## 3 Air permeability

| | | |
|---|---|---|
| Air permeability at 50 pascals | 5.00 (design value) | |
| Maximum | 10.0 | **OK** |

## 4 Heating efficiency

| | | |
|---|---|---|
| Main Heating system: | Community heating schemes - mains gas<br>Community boilers | |
| Secondary heating system: | None | |

## 5 Cylinder insulation

| | | |
|---|---|---|
| Hot water Storage: | Measured cylinder loss: 1.81 kWh/day<br>Permitted by DBSCG: 1.89 kWh/day | **OK** |
| Primary pipework insulated: | Yes | **OK** |

## 6 Controls

| | | |
|---|---|---|
| Space heating controls | Charging system linked to use of community heating, programmer and at least two room thermostats | **OK** |
| Hot water controls: | Cylinderstat | **OK** |

# Regulations Compliance Report

## 7 Low energy lights

| | | |
|---|---|---|
| Percentage of fixed lights with low-energy fittings | 100.0% | |
| Minimum | 75.0% | **OK** |

## 8 Mechanical ventilation

| | | |
|---|---|---|
| Continuous supply and extract system | | |
| Specific fan power: | 0.77 | |
| Maximum | 1.5 | **OK** |
| MVHR efficiency: | 87% | |
| Minimum | 70% | **OK** |

## 9 Summertime temperature

| | | |
|---|---|---|
| Overheating risk (South England): | Slight | **OK** |

Based on:

| | |
|---|---|
| Overshading: | Average or unknown |
| Windows facing: North East | 3.35m² |
| Windows facing: South West | 5.47m² |
| Ventilation rate: | 6.00 |

## 10 Key features

Community heating, heat from boilers – mains gas

Photovoltaic array

# Predicted Energy Assessment

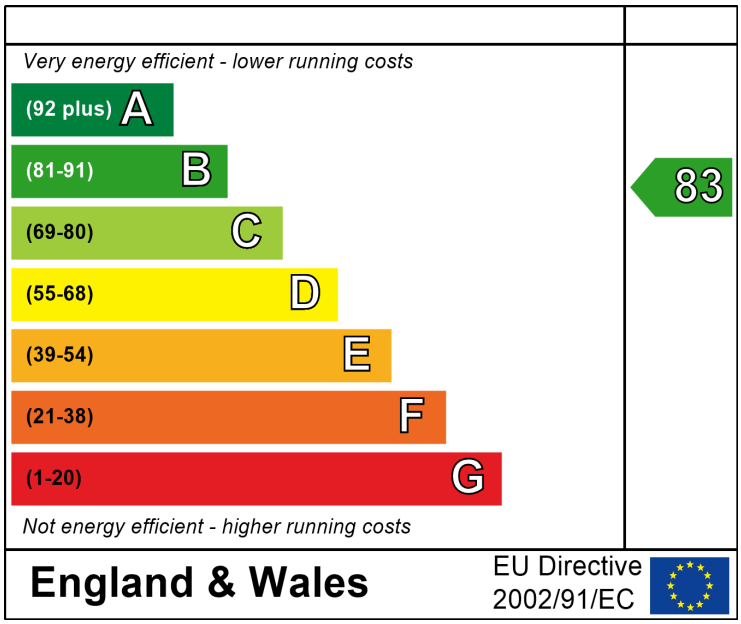
Flat E
23 Ravenshaw Street
London
NW6 1NP

Dwelling type: Mid floor Flat
Date of assessment: 02 March 2020
Produced by: Mark Heptonstall
Total floor area: 71.86 m$^2$

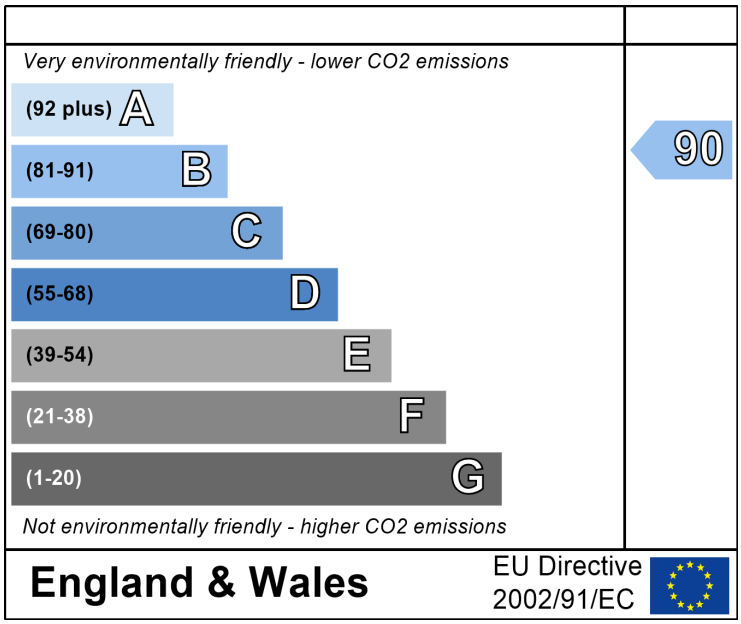
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

## Energy Efficiency Rating




## Environmental Impact ($CO_2$) 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.

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.

# Developer Confirmation Report

## Property Details: Flat E

| | |
|---|---|
| Address: | Flat E, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Thermal Mass Parameter: | Indicative Value Low |

Comments:

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |
| Front of dwelling faces: | South East |

Comments:

## Opening types:

| Name: | Type: | Frame Factor: | g-value: | U-Value: | Area: |
|---|---|---|---|---|---|
| SE | Solid | 0.7 | 0 | 1.3 | 2 |
| NE | Windows | 0.7 | 0.72 | 1.2 | 3.35 |
| SW | Windows | 0.7 | 0.72 | 1.2 | 5.47 |

Overshading: Average or unknown

Comments:

## Opaque Elements:

| Type: | U-Value: | | Kappa: |
|---|---|---|---|
| External Elements | | | |
| External Walls | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Communal | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Flat Roof | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Rafters | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Internal Elements (Area, Kappa) | | | |

# Developer Confirmation Report

Party Elements (Area, Kappa)

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0654

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| | 8.38 | 0.08 | E14 | Flat roof |
| [Approved] | 36.28 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| [Approved] | 3.05 | 0.04 | E13 | Gable (insulation at rafter level) |
| [Approved] | 4.6 | 0.04 | E11 | Eaves (insulation at rafter level) |

Comments:

If specific construction details have been adopted then please provide the associated checklists; signed and dated.

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Pressure test: 5

Comments:

Please provide the pressure test certificate, or certificates if the result is based on an average; signed and dated.

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

Comments:

## Main heating Control:

Main heating Control:

Charging system linked to use of community heating, programmer and at least two

# Developer Confirmation Report

room thermostats

Comments:

## Secondary heating system:

Secondary heating system: None

Comments:

## Water heating:

Water heating:
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True

Comments:

Solar panel: False

## Others:

Electricity tariff: Standard Tariff
Low energy lights: 100%
Terrain type: Low rise urban / suburban
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.52
Tilt of collector: 45°
Overshading: None or very little
Collector Orientation: South

Comments:

Please provide the MCS certificate or data sheet equivalent confirming the size of the array on the roof. This should include any calculations to support a proportioned amount included in the assessment.

## Declaration :

I confirm that the property has been built to the above specification.

# Developer Confirmation Report

Signed:

.....

Date:

.....

# SAP Input

## Property Details: Flat E

| | |
|---|---|
| Address: | Flat E, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Tenure type: | Unknown |
| Related party disclosure: | No related party |
| Thermal Mass Parameter: | Indicative Value Low |
| Water use <= 125 litres/person/day: | True |
| PCDF Version: | 456 |

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |

| Floor Location: | Floor area: | Storey height: |
|---|---|---|
| Floor 0 | 71.86 m² | 2.5 m |

| | |
|---|---|
| Living area: | 34.13 m² (fraction 0.475) |
| Front of dwelling faces: | South East |

## Opening types:

| Name: | Source: | Type: | Glazing: | Argon: | Frame: |
|---|---|---|---|---|---|
| SE | Manufacturer | Solid | | | Wood |
| NE | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| SW | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |

| **Name:** | **Gap:** | **Frame Factor:** | **g-value:** | **U-value:** | **Area:** | **No. of Openings:** |
|---|---|---|---|---|---|---|
| SE | mm | 0.7 | 0 | 1.3 | 2 | 1 |
| NE | 16mm or more | 0.7 | 0.72 | 1.2 | 3.35 | 1 |
| SW | 16mm or more | 0.7 | 0.72 | 1.2 | 5.47 | 1 |

| Name: | Type-Name: | Location: | Orient: | Width: | Height: |
|---|---|---|---|---|---|
| SE | | Communal | South East | 0 | 0 |
| NE | | External Walls | North East | 0 | 0 |
| SW | | External Walls | South West | 0 | 0 |

Overshading: Average or unknown

## Opaque Elements:

| Type: | Gross area: | Openings: | Net area: | U-value: | Ru value: | Curtain wall: | Kappa: |
|---|---|---|---|---|---|---|---|
| External Elements | | | | | | | |
| External Walls | 57.76 | 8.82 | 48.94 | 0.18 | 0 | False | N/A |
| Communal | 16.87 | 2 | 14.87 | 0.18 | 0 | False | N/A |
| Flat Roof | 12.42 | 0 | 12.42 | 0.15 | 0 | | N/A |
| Rafters | 14.01 | 0 | 14.01 | 0.15 | 0 | | N/A |
| Internal Elements | | | | | | | |
| Party Elements | | | | | | | |

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0654

| **Length** | **Psi-value** | | |
|---|---|---|---|
| 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |

# SAP Input

| | | | | |
|---|---|---|---|---|
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 12.4 | 0.09 | E16 | Corner (normal) |
| [Approved] | 3.1 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 10 | 0.06 | E18 | Party wall between dwellings |
| | 8.38 | 0.08 | E14 | Flat roof |
| [Approved] | 36.28 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| [Approved] | 3.05 | 0.04 | E13 | Gable (insulation at rafter level) |
| [Approved] | 4.6 | 0.04 | E11 | Eaves (insulation at rafter level) |

## Ventilation:

| | |
|---|---|
| Pressure test: | Yes (As designed) |
| Ventilation: | Balanced with heat recovery<br>Number of wet rooms: Kitchen + 3<br>Ductwork: Insulation, rigid<br>Approved Installation Scheme: True |
| Number of chimneys: | 0 |
| Number of open flues: | 0 |
| Number of fans: | 0 |
| Number of passive stacks: | 0 |
| Number of sides sheltered: | 2 |
| Pressure test: | 5 |

## Main heating system:

| | |
|---|---|
| Main heating system: | Community heating schemes<br>Heat source: Community boilers<br>heat from boilers – mains gas, heat fraction 1, efficiency 90<br>Piping>=1991, pre-insulated, low temp, variable flow |

## Main heating Control:

| | |
|---|---|
| Main heating Control: | Charging system linked to use of community heating, programmer and at least two room thermostats<br>Control code: 2312 |

## Secondary heating system:

| | |
|---|---|
| Secondary heating system: | None |

## Water heating:

| | |
|---|---|
| Water heating: | From main heating system<br>Water code: 901<br>Fuel :heat from boilers – mains gas<br>Hot water cylinder<br>Cylinder volume: 150 litres<br>Cylinder insulation: Measured loss, 1.81kWh/day<br>Primary pipework insulation: True<br>Cylinderstat: True<br>Cylinder in heated space: True<br>Solar panel: False |

## Others:

| | |
|---|---|
| Electricity tariff: | Standard Tariff |
| In Smoke Control Area: | Unknown |
| Conservatory: | No conservatory |
| Low energy lights: | 100% |
| Terrain type: | Low rise urban / suburban |
| EPC language: | English |
| Wind turbine: | No |
| Photovoltaics: | Photovoltaic 1<br>Installed Peak power: 0.52<br>Tilt of collector: 45° |

# SAP Input

| | |
|---|---|
| | Overshading: None or very little<br>Collector Orientation: South |
| Assess Zero Carbon Home: | No |

# SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 04 March 2020

## Property Details: Flat E

| | |
|---|---|
| **Dwelling type:** | Flat |
| **Located in:** | England |
| **Region:** | South England |
| **Cross ventilation possible:** | Yes |
| **Number of storeys:** | 1 |
| **Front of dwelling faces:** | South East |
| **Overshading:** | Average or unknown |
| **Overhangs:** | None |
| **Thermal mass parameter:** | Indicative Value Low |
| **Night ventilation:** | False |
| **Blinds, curtains, shutters:** | |
| **Ventilation rate during hot weather (ach):** | 6 ( Windows fully open) |

## Overheating Details:

| | | |
|---|---|---|
| **Summer ventilation heat loss coefficient:** | 355.71 | **(P1)** |
| **Transmission heat loss coefficient:** | 34.8 | |
| **Summer heat loss coefficient:** | 390.46 | **(P2)** |

## Overhangs:

| **Orientation:** | **Ratio:** | **Z_overhangs:** |
|---|---|---|
| North East (NE) | 0 | 1 |
| South West (SW) | 0 | 1 |

## Solar shading:

| **Orientation:** | **Z blinds:** | **Solar access:** | **Overhangs:** | **Z summer:** | |
|---|---|---|---|---|---|
| North East (NE) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| South West (SW) | 1 | 0.9 | 1 | 0.9 | **(P8)** |

## Solar gains:

| **Orientation** | | **Area** | **Flux** | **g_** | **FF** | **Shading** | **Gains** | |
|---|---|---|---|---|---|---|---|---|
| North East (NE) | 0.9 x | 3.35 | 106.05 | 0.72 | 0.7 | 0.9 | 145.03 | |
| South West (SW) | 0.9 x | 5.47 | 127.31 | 0.72 | 0.7 | 0.9 | 284.3 | |
| | | | | | | **Total** | 429.33 | **(P3/P4)** |

## Internal gains:

| | **June** | **July** | **August** | |
|---|---|---|---|---|
| Internal gains | 457.04 | 440.66 | 448.83 | |
| Total summer gains | 918.2 | 869.99 | 832.11 | **(P5)** |
| Summer gain/loss ratio | 2.35 | 2.23 | 2.13 | **(P6)** |
| Mean summer external temperature (South England) | 15.4 | 17.3 | 17.3 | |
| Thermal mass temperature increment | 1.3 | 1.3 | 1.3 | |
| Threshold temperature | 19.05 | 20.83 | 20.73 | **(P7)** |
| **Likelihood of high internal temperature** | **Not significant** | **Slight** | **Slight** | |

**Assessment of likelihood of high internal temperature:** Slight

# Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.4.25
*Printed on 04 March 2020 at 13:22:20*

## Project Information:

**Assessed By:** Mark Heptonstall (STRO004925) **Building Type:** Flat

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 72.49m²

**Site Reference :** 10628 - 23 Ravenshaw Street **Plot Reference:** Flat F

**Address :** Flat F, 23 Ravenshaw Street, London, NW6 1NP

## Client Details:

**Name:**

**Address :**

**This report covers items included within the SAP calculations.**
**It is not a complete report of regulations compliance.**

## 1a TER and DER

Fuel for main heating system: Mains gas (c)
Fuel factor: 1.00 (mains gas (c))

| | | |
|---|---|---|
| Target Carbon Dioxide Emission Rate (TER) | 17.46 kg/m² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 13.68 kg/m² | **OK** |

## 1b TFEE and DFEE

| | | |
|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 44.8 kWh/m² | |
| Dwelling Fabric Energy Efficiency (DFEE) | 37.0 kWh/m² | |
| | | **OK** |

## 2 Fabric U-values

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.18 (max. 0.30) | 0.18 (max. 0.70) | **OK** |
| Floor | (no floor) | | |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | **OK** |
| Openings | 1.22 (max. 2.00) | 1.30 (max. 3.30) | **OK** |

## 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

## 3 Air permeability

| | | |
|---|---|---|
| Air permeability at 50 pascals | 5.00 (design value) | |
| Maximum | 10.0 | **OK** |

## 4 Heating efficiency

| | | |
|---|---|---|
| Main Heating system: | Community heating schemes - mains gas<br>Community boilers | |
| Secondary heating system: | None | |

## 5 Cylinder insulation

| | | |
|---|---|---|
| Hot water Storage: | Measured cylinder loss: 1.81 kWh/day<br>Permitted by DBSCG: 1.89 kWh/day | **OK** |
| Primary pipework insulated: | Yes | **OK** |

## 6 Controls

| | | |
|---|---|---|
| Space heating controls | Charging system linked to use of community heating, programmer and at least two room thermostats | **OK** |
| Hot water controls: | Cylinderstat | **OK** |

# Regulations Compliance Report

## 7 Low energy lights

| | | |
|---|---|---|
| Percentage of fixed lights with low-energy fittings | 100.0% | |
| Minimum | 75.0% | **OK** |

## 8 Mechanical ventilation

| | | |
|---|---|---|
| Continuous supply and extract system | | |
| Specific fan power: | 0.77 | |
| Maximum | 1.5 | **OK** |
| MVHR efficiency: | 87% | |
| Minimum | 70% | **OK** |

## 9 Summertime temperature

| | | |
|---|---|---|
| Overheating risk (South England): | Slight | **OK** |

Based on:

| | |
|---|---|
| Overshading: | Average or unknown |
| Windows facing: North East | 3.35m² |
| Windows facing: South West | 5.47m² |
| Ventilation rate: | 6.00 |

## 10 Key features

Community heating, heat from boilers – mains gas

Photovoltaic array

# Predicted Energy Assessment

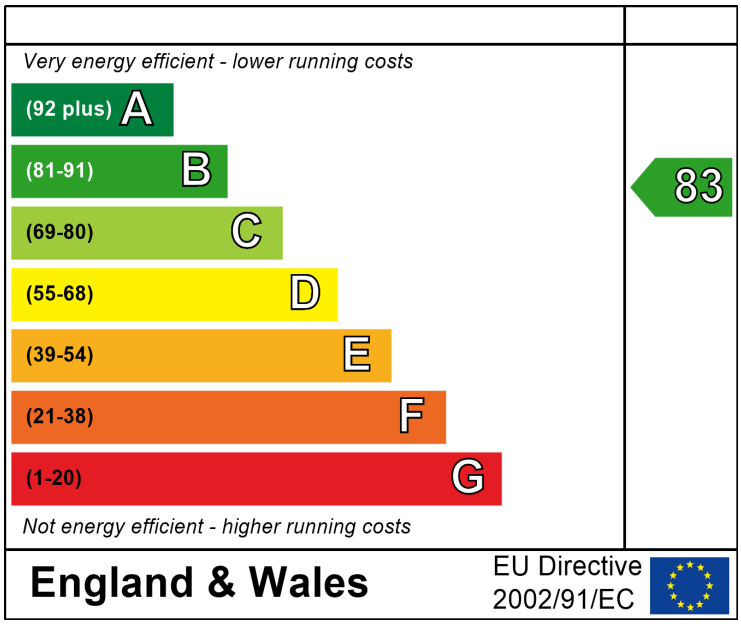
Flat F
23 Ravenshaw Street
London
NW6 1NP

Dwelling type: Mid floor Flat
Date of assessment: 02 March 2020
Produced by: Mark Heptonstall
Total floor area: 72.49 m²

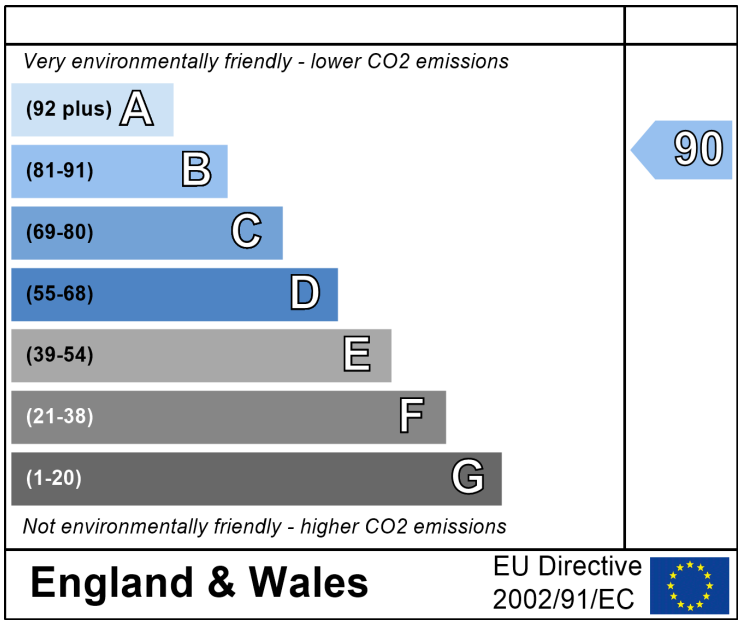
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

## Energy Efficiency Rating




## Environmental Impact ($CO_2$) 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.

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.

# Developer Confirmation Report

## Property Details: Flat F

| | |
|---|---|
| Address: | Flat F, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Thermal Mass Parameter: | Indicative Value Low |

Comments:

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |
| Front of dwelling faces: | North West |

Comments:

## Opening types:

| Name: | Type: | Frame Factor: | g-value: | U-Value: | Area: |
|---|---|---|---|---|---|
| NW | Solid | 0.7 | 0 | 1.3 | 2 |
| NE | Windows | 0.7 | 0.72 | 1.2 | 3.35 |
| SW | Windows | 0.7 | 0.72 | 1.2 | 5.47 |

Overshading: Average or unknown

Comments:

## Opaque Elements:

| Type: | U-Value: | | Kappa: |
|---|---|---|---|
| External Elements | | | |
| External Walls | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Communal | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Flat Roof | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Joists (void) | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Internal Elements (Area, Kappa) | | | |

# Developer Confirmation Report

Party Elements (Area, Kappa)

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0716

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 15 | 0.09 | E16 | Corner (normal) |
| [Approved] | 5 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 33.35 | 0.06 | E18 | Party wall between dwellings |
| | 11.65 | 0.08 | E14 | Flat roof |
| [Approved] | 23.82 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| [Approved] | 5.25 | 0.06 | E10 | Eaves (insulation at ceiling level) |

Comments:

If specific construction details have been adopted then please provide the associated checklists; signed and dated.

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Pressure test: 5

Comments:

Please provide the pressure test certificate, or certificates if the result is based on an average; signed and dated.

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

Comments:

## Main heating Control:

Main heating Control:

Charging system linked to use of community heating, programmer and at least two room thermostats

# Developer Confirmation Report

Comments:

## Secondary heating system:

Secondary heating system: None

Comments:

## Water heating:

Water heating:
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True

Comments:

Solar panel: False

## Others:

Electricity tariff: Standard Tariff
Low energy lights: 100%
Terrain type: Low rise urban / suburban
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.53
Tilt of collector: 45°
Overshading: None or very little
Collector Orientation: South

Comments:

Please provide the MCS certificate or data sheet equivalent confirming the size of the array on the roof. This should include any calculations to support a proportioned amount included in the assessment.

## Declaration :

I confirm that the property has been built to the above specification.

Signed:

# Developer Confirmation Report

.....

Date:

.....

# SAP Input

## Property Details: Flat F

| | |
|---|---|
| Address: | Flat F, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Tenure type: | Unknown |
| Related party disclosure: | No related party |
| Thermal Mass Parameter: | Indicative Value Low |
| Water use <= 125 litres/person/day: | True |
| PCDF Version: | 456 |

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |

| Floor Location: | Floor area: | Storey height: |
|---|---|---|
| Floor 0 | 72.49 m² | 2.5 m |

| | |
|---|---|
| Living area: | 40.17 m² (fraction 0.554) |
| Front of dwelling faces: | North West |

## Opening types:

| Name: | Source: | Type: | Glazing: | Argon: | Frame: |
|---|---|---|---|---|---|
| NW | Manufacturer | Solid | | | Wood |
| NE | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| SW | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |

| **Name:** | **Gap:** | **Frame Factor:** | **g-value:** | **U-value:** | **Area:** | **No. of Openings:** |
|---|---|---|---|---|---|---|
| NW | mm | 0.7 | 0 | 1.3 | 2 | 1 |
| NE | 16mm or more | 0.7 | 0.72 | 1.2 | 3.35 | 1 |
| SW | 16mm or more | 0.7 | 0.72 | 1.2 | 5.47 | 1 |

| Name: | Type-Name: | Location: | Orient: | Width: | Height: |
|---|---|---|---|---|---|
| NW | | Communal | North West | 0 | 0 |
| NE | | External Walls | North East | 0 | 0 |
| SW | | External Walls | South West | 0 | 0 |

| | |
|---|---|
| Overshading: | Average or unknown |

## Opaque Elements:

| Type: | Gross area: | Openings: | Net area: | U-value: | Ru value: | Curtain wall: | Kappa: |
|---|---|---|---|---|---|---|---|
| External Elements | | | | | | | |
| External Walls | 54.65 | 8.82 | 45.83 | 0.18 | 0 | False | N/A |
| Communal | 27.35 | 2 | 25.35 | 0.18 | 0 | False | N/A |
| Flat Roof | 14.47 | 0 | 14.47 | 0.15 | 0 | | N/A |
| Joists (void) | 7.87 | 0 | 7.87 | 0.15 | 0 | | N/A |
| Internal Elements | | | | | | | |
| Party Elements | | | | | | | |

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0716

| **Length** | **Psi-value** | | |
|---|---|---|---|
| 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |

# SAP Input

| | | | | |
|---|---|---|---|---|
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 15 | 0.09 | E16 | Corner (normal) |
| [Approved] | 5 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 33.35 | 0.06 | E18 | Party wall between dwellings |
| | 11.65 | 0.08 | E14 | Flat roof |
| [Approved] | 23.82 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| [Approved] | 5.25 | 0.06 | E10 | Eaves (insulation at ceiling level) |

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Number of chimneys: 0

Number of open flues: 0

Number of fans: 0

Number of passive stacks: 0

Number of sides sheltered: 2

Pressure test: 5

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

## Main heating Control:

Main heating Control: Charging system linked to use of community heating, programmer and at least two room thermostats
Control code: 2312

## Secondary heating system:

Secondary heating system: None

## Water heating:

Water heating: From main heating system
Water code: 901
Fuel :heat from boilers – mains gas
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True
Solar panel: False

## Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

Conservatory: No conservatory

Low energy lights: 100%

Terrain type: Low rise urban / suburban

EPC language: English

Wind turbine: No

Photovoltaics: Photovoltaic 1
Installed Peak power: 0.53
Tilt of collector: 45°
Overshading: None or very little

# SAP Input

Collector Orientation: South

Assess Zero Carbon Home: No

# SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 04 March 2020

## Property Details: Flat F

| | |
|---|---|
| **Dwelling type:** | Flat |
| **Located in:** | England |
| **Region:** | South England |
| **Cross ventilation possible:** | Yes |
| **Number of storeys:** | 1 |
| **Front of dwelling faces:** | North West |
| **Overshading:** | Average or unknown |
| **Overhangs:** | None |
| **Thermal mass parameter:** | Indicative Value Low |
| **Night ventilation:** | False |
| **Blinds, curtains, shutters:** | |
| **Ventilation rate during hot weather (ach):** | 6 ( Windows fully open) |

## Overheating Details:

| | | |
|---|---|---|
| **Summer ventilation heat loss coefficient:** | 358.83 | **(P1)** |
| **Transmission heat loss coefficient:** | 36.3 | |
| **Summer heat loss coefficient:** | 395.16 | **(P2)** |

## Overhangs:

| **Orientation:** | **Ratio:** | **Z_overhangs:** |
|---|---|---|
| North East (NE) | 0 | 1 |
| South West (SW) | 0 | 1 |

## Solar shading:

| **Orientation:** | **Z blinds:** | **Solar access:** | **Overhangs:** | **Z summer:** | |
|---|---|---|---|---|---|
| North East (NE) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| South West (SW) | 1 | 0.9 | 1 | 0.9 | **(P8)** |

## Solar gains:

| **Orientation** | | **Area** | **Flux** | **g_** | **FF** | **Shading** | **Gains** | |
|---|---|---|---|---|---|---|---|---|
| North East (NE) | 0.9 x | 3.35 | 106.05 | 0.72 | 0.7 | 0.9 | 145.03 | |
| South West (SW) | 0.9 x | 5.47 | 127.31 | 0.72 | 0.7 | 0.9 | 284.3 | |
| | | | | | | **Total** | 429.33 | **(P3/P4)** |

## Internal gains:

| | **June** | **July** | **August** | |
|---|---|---|---|---|
| Internal gains | 459.46 | 442.98 | 451.21 | |
| Total summer gains | 920.62 | 872.31 | 834.49 | **(P5)** |
| Summer gain/loss ratio | 2.33 | 2.21 | 2.11 | **(P6)** |
| Mean summer external temperature (South England) | 15.4 | 17.3 | 17.3 | |
| Thermal mass temperature increment | 1.3 | 1.3 | 1.3 | |
| Threshold temperature | 19.03 | 20.81 | 20.71 | **(P7)** |
| **Likelihood of high internal temperature** | **Not significant** | **Slight** | **Slight** | |

**Assessment of likelihood of high internal temperature:** Slight

# Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.4.25
*Printed on 04 March 2020 at 13:22:08*

## Project Information:

**Assessed By:** Mark Heptonstall (STRO004925) **Building Type:** Flat

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 78.93m²

**Site Reference :** 10628 - 23 Ravenshaw Street **Plot Reference:** Flat G

**Address :** Flat G, 23 Ravenshaw Street, London, NW6 1NP

## Client Details:

**Name:**

**Address :**

**This report covers items included within the SAP calculations.**
**It is not a complete report of regulations compliance.**

## 1a TER and DER

Fuel for main heating system: Mains gas (c)
Fuel factor: 1.00 (mains gas (c))

| | | |
|---|---|---|
| Target Carbon Dioxide Emission Rate (TER) | 21.38 kg/m² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 16.73 kg/m² | **OK** |

## 1b TFEE and DFEE

| | | |
|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 68.5 kWh/m² | |
| Dwelling Fabric Energy Efficiency (DFEE) | 55.0 kWh/m² | |
| | | **OK** |

## 2 Fabric U-values

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.18 (max. 0.30) | 0.18 (max. 0.70) | **OK** |
| Floor | (no floor) | | |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | **OK** |
| Openings | 1.24 (max. 2.00) | 1.30 (max. 3.30) | **OK** |

## 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

## 3 Air permeability

| | | |
|---|---|---|
| Air permeability at 50 pascals | 5.00 (design value) | |
| Maximum | 10.0 | **OK** |

## 4 Heating efficiency

| | | |
|---|---|---|
| Main Heating system: | Community heating schemes - mains gas<br>Community boilers | |
| Secondary heating system: | None | |

## 5 Cylinder insulation

| | | |
|---|---|---|
| Hot water Storage: | Measured cylinder loss: 1.81 kWh/day<br>Permitted by DBSCG: 1.89 kWh/day | **OK** |
| Primary pipework insulated: | Yes | **OK** |

## 6 Controls

| | | |
|---|---|---|
| Space heating controls | Charging system linked to use of community heating, programmer and at least two room thermostats | **OK** |
| Hot water controls: | Cylinderstat | **OK** |

# Regulations Compliance Report

| | | |
|---|---|---|
| **7 Low energy lights** | | |
| Percentage of fixed lights with low-energy fittings | 100.0% | |
| Minimum | 75.0% | **OK** |
| **8 Mechanical ventilation** | | |
| Continuous supply and extract system | | |
| Specific fan power: | 0.77 | |
| Maximum | 1.5 | **OK** |
| MVHR efficiency: | 87% | |
| Minimum | 70% | **OK** |
| **9 Summertime temperature** | | |
| Overheating risk (South England): | Slight | **OK** |
| Based on: | | |
| Overshading: | Average or unknown | |
| Windows facing: South West | 5.3m² | |
| Windows facing: South West | 2.82m² | |
| Roof windows facing: North East | 3.9m² | |
| Ventilation rate: | 6.00 | |
| **10 Key features** | | |
| Thermal bridging | 0.027 W/m²K | |
| Community heating, heat from boilers – mains gas | | |
| Photovoltaic array | | |

# Predicted Energy Assessment

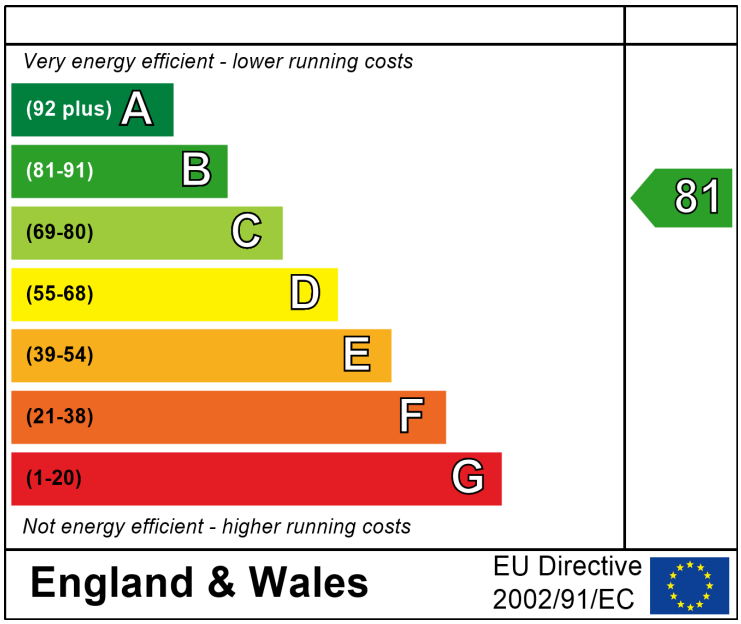
Flat G
23 Ravenshaw Street
London
NW6 1NP

Dwelling type: Top floor Flat
Date of assessment: 02 March 2020
Produced by: Mark Heptonstall
Total floor area: 78.93 m²

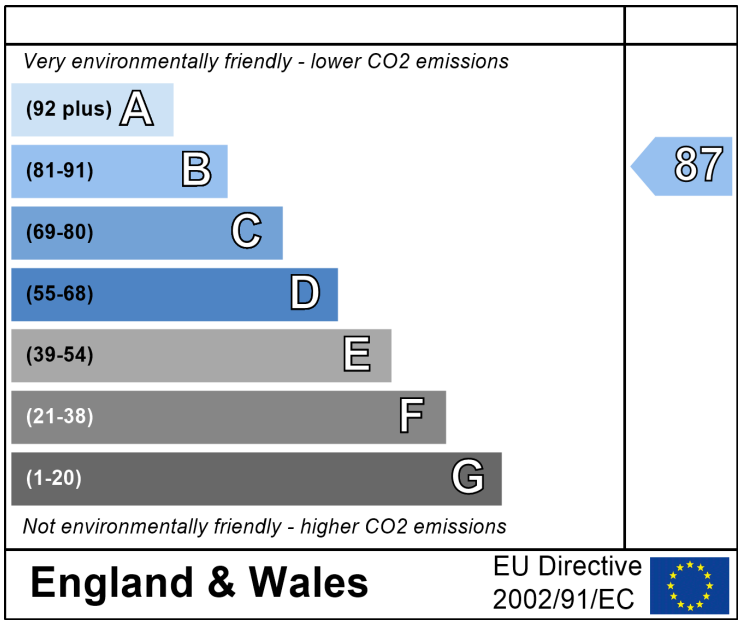
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

## Energy Efficiency Rating




## Environmental Impact ($CO_2$) 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.

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.

# Developer Confirmation Report

## Property Details: Flat G

| | |
|---|---|
| Address: | Flat G, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Thermal Mass Parameter: | Indicative Value Low |

Comments:

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |
| Front of dwelling faces: | South East |

Comments:

## Opening types:

| Name: | Type: | Frame Factor: | g-value: | U-Value: | Area: |
|---|---|---|---|---|---|
| SE | Solid | 0.7 | 0 | 1.3 | 2 |
| SW | Windows | 0.7 | 0.72 | 1.2 | 5.3 |
| SWD | Windows | 0.7 | 0.72 | 1.2 | 2.82 |
| NE | Roof Windows | 0.7 | 0.72 | 1.3 | 3.9 |

Overshading: Average or unknown

Comments:

## Opaque Elements:

| Type: | U-Value: | | Kappa: |
|---|---|---|---|
| External Elements | | | |
| External Walls | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Communal | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Dormer | 0.18 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Flat Roof | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |
| Rafters | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |

# Developer Confirmation Report

| | | | |
|---|---|---|---|
| Joists | 0.15 | Please provide the U-Value calculation to justify the U-Value entered into the assessment. | N/A |

Internal Elements (Area, Kappa)
Party Elements (Area, Kappa)

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0271

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
| [Approved] | 19.88 | 0.05 | E4 | Jamb |
| [Approved] | 15 | 0.09 | E16 | Corner (normal) |
| [Approved] | 5 | -0.09 | E17 | Corner (inverted internal area greater than external area) |
| [Approved] | 33.35 | 0.06 | E18 | Party wall between dwellings |
| | 11.65 | 0.08 | E14 | Flat roof |
| [Approved] | 23.82 | 0.07 | E7 | Party floor between dwellings (in blocks of flats) |
| [Approved] | 5.25 | 0.06 | E10 | Eaves (insulation at ceiling level) |
| [Approved] | 2.61 | 0.04 | E13 | Gable (insulation at rafter level) |
| [Approved] | 9.29 | 0.04 | E11 | Eaves (insulation at rafter level) |

Comments:

If specific construction details have been adopted then please provide the associated checklists; signed and dated.

## Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True
Pressure test: 5
Comments:

Please provide the pressure test certificate, or certificates if the result is based on an average; signed and dated.

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

Comments:

# Developer Confirmation Report

## Main heating Control:

Main heating Control:

Charging system linked to use of community heating, programmer and at least two room thermostats

Comments:

## Secondary heating system:

Secondary heating system: None

Comments:

## Water heating:

Water heating:

Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True

Comments:

Solar panel: False

## Others:

Electricity tariff: Standard Tariff
Low energy lights: 100%
Terrain type: Low rise urban / suburban
Wind turbine: No
Photovoltaics: Photovoltaic 1
Installed Peak power: 0.73
Tilt of collector: 45°
Overshading: None or very little
Collector Orientation: South

Comments:

Please provide the MCS certificate or data sheet equivalent confirming the size of the array on the roof. This should include any calculations to support a proportioned amount included in the assessment.

# Developer Confirmation Report

## Declaration :

I confirm that the property has been built to the above specification.

Signed:

.....

Date:

.....

# SAP Input

## Property Details: Flat G

| | |
|---|---|
| Address: | Flat G, 23 Ravenshaw Street, London, NW6 1NP |
| Located in: | England |
| Region: | South England |
| UPRN: | |
| Date of assessment: | 02 March 2020 |
| Date of certificate: | 04 March 2020 |
| Assessment type: | New dwelling design stage |
| Transaction type: | New dwelling |
| Tenure type: | Unknown |
| Related party disclosure: | No related party |
| Thermal Mass Parameter: | Indicative Value Low |
| Water use <= 125 litres/person/day: | True |
| PCDF Version: | 456 |

## Property description:

| | |
|---|---|
| Dwelling type: | Flat |
| Detachment: | |
| Year Completed: | 2020 |

| Floor Location: | Floor area: | Storey height: |
|---|---|---|
| Floor 0 | 78.93 m² | 2.5 m |

| | |
|---|---|
| Living area: | 39 m² (fraction 0.494) |
| Front of dwelling faces: | South East |

## Opening types:

| Name: | Source: | Type: | Glazing: | Argon: | Frame: |
|---|---|---|---|---|---|
| SE | Manufacturer | Solid | | | Wood |
| SW | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| SWD | Manufacturer | Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |
| NE | Manufacturer | Roof Windows | low-E, En = 0.15, hard coat | Yes | PVC-U |

| **Name:** | **Gap:** | **Frame Factor:** | **g-value:** | **U-value:** | **Area:** | **No. of Openings:** |
|---|---|---|---|---|---|---|
| SE | mm | 0.7 | 0 | 1.3 | 2 | 1 |
| SW | 16mm or more | 0.7 | 0.72 | 1.2 | 5.3 | 1 |
| SWD | 16mm or more | 0.7 | 0.72 | 1.2 | 2.82 | 1 |
| NE | 16mm or more | 0.7 | 0.72 | 1.3 | 3.9 | 1 |

| Name: | Type-Name: | Location: | Orient: | Width: | Height: |
|---|---|---|---|---|---|
| SE | | Communal | South East | 0 | 0 |
| SW | | External Walls | South West | 0 | 0 |
| SWD | | Dormer | South West | 0 | 0 |
| NE | | Rafters | North East | 0.001 | 0 |

| | |
|---|---|
| Overshading: | Average or unknown |

## Opaque Elements:

| Type: | Gross area: | Openings: | Net area: | U-value: | Ru value: | Curtain wall: | Kappa: |
|---|---|---|---|---|---|---|---|
| External Elements | | | | | | | |
| External Walls | 166.24 | 5.3 | 160.94 | 0.18 | 0 | False | N/A |
| Communal | 31.83 | 2 | 29.83 | 0.18 | 0 | False | N/A |
| Dormer | 9.59 | 2.82 | 6.77 | 0.18 | 0 | False | N/A |
| Flat Roof | 30.83 | 0 | 30.83 | 0.15 | 0 | | N/A |
| Rafters | 26.99 | 3.9 | 23.09 | 0.15 | 0 | | N/A |
| Joists | 27.31 | 0 | 27.31 | 0.15 | 0 | | N/A |
| Internal Elements | | | | | | | |

# SAP Input

Party Elements

## Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0271

| | Length | Psi-value | | |
|---|---|---|---|---|
| | 12.1 | 0.05 | E1 | Steel lintel with perforated steel base plate |
| [Approved] | 1.4 | 0.04 | E3 | Sill |
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| [Approved] | 2.61 | 0.04 | E13 | Gable (insulation at rafter level) |
| [Approved] | 9.29 | 0.04 | E11 | Eaves (insulation at rafter level) |

## Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 3
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Number of chimneys: 0
Number of open flues: 0
Number of fans: 0
Number of passive stacks: 0
Number of sides sheltered: 2
Pressure test: 5

## Main heating system:

Main heating system: Community heating schemes
Heat source: Community boilers
heat from boilers – mains gas, heat fraction 1, efficiency 90
Piping>=1991, pre-insulated, low temp, variable flow

## Main heating Control:

Main heating Control: Charging system linked to use of community heating, programmer and at least two room thermostats
Control code: 2312

## Secondary heating system:

Secondary heating system: None

## Water heating:

Water heating: From main heating system
Water code: 901
Fuel :heat from boilers – mains gas
Hot water cylinder
Cylinder volume: 150 litres
Cylinder insulation: Measured loss, 1.81kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True
Solar panel: False

## Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown

# SAP Input

| | |
|---|---|
| Conservatory: | No conservatory |
| Low energy lights: | 100% |
| Terrain type: | Low rise urban / suburban |
| EPC language: | English |
| Wind turbine: | No |
| Photovoltaics: | Photovoltaic 1<br>Installed Peak power: 0.73<br>Tilt of collector: 45°<br>Overshading: None or very little<br>Collector Orientation: South |
| Assess Zero Carbon Home: | No |

# SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 04 March 2020

## Property Details: Flat G

| | |
|---|---|
| **Dwelling type:** | Flat |
| **Located in:** | England |
| **Region:** | South England |
| **Cross ventilation possible:** | Yes |
| **Number of storeys:** | 1 |
| **Front of dwelling faces:** | South East |
| **Overshading:** | Average or unknown |
| **Overhangs:** | None |
| **Thermal mass parameter:** | Indicative Value Low |
| **Night ventilation:** | False |
| **Blinds, curtains, shutters:** | |
| **Ventilation rate during hot weather (ach):** | 6 ( Windows fully open) |

## Overheating Details:

| | | |
|---|---|---|
| **Summer ventilation heat loss coefficient:** | 390.7 | **(P1)** |
| **Transmission heat loss coefficient:** | 72.4 | |
| **Summer heat loss coefficient:** | 463.11 | **(P2)** |

## Overhangs:

| **Orientation:** | **Ratio:** | **Z_overhangs:** |
|---|---|---|
| South West (SW) | 0 | 1 |
| South West (SWD) | 0 | 1 |
| North East (NE) | 0 | 1 |

## Solar shading:

| **Orientation:** | **Z blinds:** | **Solar access:** | **Overhangs:** | **Z summer:** | |
|---|---|---|---|---|---|
| South West (SW) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| South West (SWD) | 1 | 0.9 | 1 | 0.9 | **(P8)** |
| North East (NE) | 1 | 1 | 1 | 1 | **(P8)** |

## Solar gains:

| **Orientation** | | **Area** | **Flux** | **g_** | **FF** | **Shading** | **Gains** | |
|---|---|---|---|---|---|---|---|---|
| South West (SW) | 0.9 x | 5.3 | 127.31 | 0.72 | 0.7 | 0.9 | 275.46 | |
| South West (SWD) | 0.9 x | 2.82 | 127.31 | 0.72 | 0.7 | 0.9 | 146.57 | |
| | 1 x | 3.9 | 168.26 | 0.72 | 0.7 | 1 | 297.66 | |
| | | | | | | **Total** | 719.69 | **(P3/P4)** |

## Internal gains:

| | **June** | **July** | **August** | |
|---|---|---|---|---|
| Internal gains | 481.6 | 464.02 | 472.28 | |
| Total summer gains | 1257.21 | 1183.71 | 1105.34 | **(P5)** |
| Summer gain/loss ratio | 2.71 | 2.56 | 2.39 | **(P6)** |
| Mean summer external temperature (South England) | 15.4 | 17.3 | 17.3 | |
| Thermal mass temperature increment | 1.3 | 1.3 | 1.3 | |
| Threshold temperature | 19.41 | 21.16 | 20.99 | **(P7)** |
| **Likelihood of high internal temperature** | **Not significant** | **Slight** | **Slight** | |

**Assessment of likelihood of high internal temperature:** Slight