

Building Regulations England Part L (BREL) Compliance Report

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

Date: Tue 02 Jan 2024 13:52:05

Project Information			
Assessed By	Harry Hinchliffe	Building Type	Flat, Mid-terrace
OCDEA Registration	EES/027143	Assessment Date	2024-01-02

Dwelling Details			
Assessment Type	As designed	Total Floor Area	116 m ²
Site Reference	Flat A - Baseline	Plot Reference	16505
Address	23 Flat A Ravenshaw Street, London, NW6 1NP		

Client Details	
Name	Client
Company	Company
Address	Address, Town, AA11 1AA

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

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Mains gas		
Target carbon dioxide emission rate	11.03 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.0 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	57.72 kWh _{PE} /m ²		
Dwelling primary energy	21.66 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	38.9 kWh/m ²		
Dwelling fabric energy efficiency	36.8 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	0.15	Ground Floor (0.15)	OK
Roofs	0.16	0.15	Roof (1) (0.15)	OK
Windows, doors, and roof windows	1.6	1.3	NE Sliding Doors (1.3)	OK
Rooflights	2.2	1.3	Rooflights, South West (1.3)	OK

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	13.54	0.18	
Ground floor: Ground Floor, Ground Floor	115.6	0.15	
Exposed roof: Roof (1)	2	0.15	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
NE Sliding Doors, Glazing	8.5	North East	1.0	1.3
SW Doors, Glazing	16.06	South West	1.0	1.3
Rooflights, Rooflights	20.36	South West	1.0	1.3

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.019 (!)	
External wall	E3: Sill	Calculated by person with suitable expertise	0.022 (!)	
External wall	E4: Jamb	Calculated by person with suitable expertise	0.017 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.075	
External wall	E7: Party floor between dwellings (in blocks of flats)	Calculated by person with suitable expertise	0.037 (!)	
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.042	

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

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	4 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Boiler with radiators or underfloor heating - Mains gas

Efficiency	83.5%
Emitter type	Radiators
Flow temperature	35°C
System type	Combi boiler
Manufacturer	Intergas Heating Ltd
Model	Xtreme 36
Commissioning	

Main heating system 2: Heat pump with radiators or underfloor heating - Electricity

Efficiency	320.1%
Emitter type	Underfloor
Flow temperature	35°C
System type	Heat Pump
Manufacturer	Mitsubishi Electric Europe B.V.
Model	ECODAN 5kW
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: N/A

Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: Instantaneous

Efficiency	76.0%
Manufacturer	Q-Blue B.V.
Model	Blue QB1-21D

6 Controls

Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services

Function	
Ecodesign class	
Manufacturer	
Model	

Main heating 2 - type: Not applicable

Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: N/A

Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	120 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.59 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	89%	OK
Manufacturer/Model	MRXBOXAB-ECO2	
Commissioning		
9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	1.3775 kWp	
Orientation	South	
Pitch	30°	
Overshading	None or very little	
Manufacturer		
MCS certificate		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

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

Date: Tue 02 Jan 2024 13:52:25

Project Information			
Assessed By	Harry Hinchliffe	Building Type	Flat, Mid-terrace
OCDEA Registration	EES/027143	Assessment Date	2024-01-02

Dwelling Details			
Assessment Type	As designed	Total Floor Area	112 m ²
Site Reference	Flat B - Baseline	Plot Reference	16505
Address	23 Flat A Ravenshaw Street, London, NW6 1NP		

Client Details	
Name	Client
Company	Company
Address	Address, Town, AA11 1AA

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

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Mains gas		
Target carbon dioxide emission rate	10.35 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.35 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	54.04 kWh _{PE} /m ²		
Dwelling primary energy	23.48 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	33.3 kWh/m ²		
Dwelling fabric energy efficiency	26.6 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	0.15	Ground Floor (0.15)	OK
Roofs	0.16	N/A	N/A	N/A
Windows, doors, and roof windows	1.6	1.3	NE Sliding Doors (1.3)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	13.54	0.18
Ground floor: Ground Floor, Ground Floor	112.1	0.15

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
NE Sliding Doors, Glazing	8.5	North East	1.0	1.3
Opening, Glazing	16.06	South West	1.0	1.3

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.019 (!)	
External wall	E3: Sill	Calculated by person with suitable expertise	0.022 (!)	
External wall	E4: Jamb	Calculated by person with suitable expertise	0.017 (!)	
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.075	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E7: Party floor between dwellings (in blocks of flats)	Calculated by person with suitable expertise	0.037 (!)	
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.042	

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

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	4 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Boiler with radiators or underfloor heating - Mains gas

Efficiency	83.5%
Emitter type	Underfloor
Flow temperature	35°C
System type	Combi boiler
Manufacturer	Intergas Heating Ltd
Model	Xtreme 36
Commissioning	

Main heating system 2: Heat pump with radiators or underfloor heating - Electricity

Efficiency	244.7%
Emitter type	Underfloor
Flow temperature	35°C
System type	Heat Pump
Manufacturer	Mitsubishi Electric Europe B.V.
Model	ECODAN 5kW
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: N/A

Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: Instantaneous

Efficiency	61.2%
Manufacturer	Q-Blue B.V.
Model	Blue QB1-21D

6 Controls

Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services

Function	
Ecodesign class	
Manufacturer	
Model	

Main heating 2 - type: Not applicable

Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: N/A

Manufacturer	
Model	

7 Lighting

Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	120 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.59 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	89%	OK
Manufacturer/Model	MRXBOXAB-ECO2	
Commissioning		
9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	1.3775 kWp	
Orientation	South	
Pitch	30°	
Overshading	None or very little	
Manufacturer		
MCS certificate		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:		
	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

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

Date: Tue 02 Jan 2024 13:52:43

Project Information			
Assessed By	Harry Hinchliffe	Building Type	Flat, Mid-terrace
OCDEA Registration	EES/027143	Assessment Date	2024-01-02

Dwelling Details			
Assessment Type	As designed	Total Floor Area	71 m ²
Site Reference	Flat C - Baseline	Plot Reference	16505
Address	23 Flat C Ravenshaw Street, London, NW6 1NP		

Client Details	
Name	Client
Company	Company
Address	Address, Town, AA11 1AA

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

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Mains gas		
Target carbon dioxide emission rate	10.31 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.34 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	54.14 kWh _{PE} /m ²		
Dwelling primary energy	16.89 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	21.8 kWh/m ²		
Dwelling fabric energy efficiency	12.6 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	N/A	N/A	N/A
Windows, doors, and roof windows	1.6	0.4	NE Windows (0.4)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	29.86	0.18

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
NE Windows, Glazing	2.67	North East	1.0	0.4 (!)
SW Windows, Glazing	5.57	South West	1.0	0.4 (!)

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.019 (!)	
External wall	E3: Sill	Calculated by person with suitable expertise	0.022 (!)	
External wall	E4: Jamb	Calculated by person with suitable expertise	0.017 (!)	
External wall	E7: Party floor between dwellings (in blocks of flats)	Calculated by person with suitable expertise	0.037 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.042	

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

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	4 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Boiler with radiators or underfloor heating - Mains gas

Efficiency	83.2%
Emitter type	Radiators
Flow temperature	35°C
System type	Combi boiler
Manufacturer	Intergas Heating Ltd
Model	Xtreme 24
Commissioning	

Main heating system 2: Heat pump with radiators or underfloor heating - Electricity

Efficiency	231.5%
Emitter type	Underfloor
Flow temperature	45°C
System type	Heat Pump
Manufacturer	Vaillant Group UK Ltd
Model	aroTHERM plus 3.5kW & AI
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: N/A

Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: Instantaneous

Efficiency	61.2%
Manufacturer	Q-Blue B.V.
Model	Blue QB1-21D

6 Controls

Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services

Function	
Ecodesign class	
Manufacturer	
Model	

Main heating 2 - type: Not applicable

Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: N/A

Manufacturer	
Model	

7 Lighting

Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	120 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.59 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	89%	OK
Manufacturer/Model	MRXBOXAB-ECO2	
Commissioning		
9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	1.3775 kWp	
Orientation	South	
Pitch	30°	
Overshading	None or very little	
Manufacturer		
MCS certificate		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

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

Date: Tue 02 Jan 2024 13:53:04

Project Information			
Assessed By	Harry Hinchliffe	Building Type	Flat, Mid-terrace
OCDEA Registration	EES/027143	Assessment Date	2024-01-02

Dwelling Details			
Assessment Type	As designed	Total Floor Area	70 m ²
Site Reference	Flat D - Baseline	Plot Reference	16505
Address	23 Flat C Ravenshaw Street, London, NW6 1NP		

Client Details	
Name	Client
Company	Company
Address	Address, Town, AA11 1AA

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

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Mains gas		
Target carbon dioxide emission rate	11.74 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.0 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	61.81 kWh _{PE} /m ²		
Dwelling primary energy	15.26 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	27.9 kWh/m ²		
Dwelling fabric energy efficiency	14.8 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	N/A	N/A	N/A
Windows, doors, and roof windows	1.6	0.4	NE Windows (0.4)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	29.86	0.18

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
NE Windows, Glazing	2.67	North East	1.0	0.4 (!)
SW Windows, Glazing	5.57	South West	1.0	0.4 (!)

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.019 (!)	
External wall	E3: Sill	Calculated by person with suitable expertise	0.022 (!)	
External wall	E4: Jamb	Calculated by person with suitable expertise	0.017 (!)	
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.075	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E7: Party floor between dwellings (in blocks of flats)	Calculated by person with suitable expertise	0.037 (!)	
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.042	

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

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	4 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Boiler with radiators or underfloor heating - Mains gas

Efficiency	83.2%
Emitter type	Radiators
Flow temperature	35°C
System type	Combi boiler
Manufacturer	Intergas Heating Ltd
Model	Xtreme 24
Commissioning	

Main heating system 2: Heat pump with radiators or underfloor heating - Electricity

Efficiency	234.2%
Emitter type	Underfloor
Flow temperature	45°C
System type	Heat Pump
Manufacturer	Vaillant Group UK Ltd
Model	aroTHERM plus 3.5kW & AI
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: N/A

Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: Instantaneous

Efficiency	76.0%
Manufacturer	Q-Blue B.V.
Model	QB1-21D

6 Controls

Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services

Function	
Ecodesign class	
Manufacturer	
Model	

Main heating 2 - type: Not applicable

Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: N/A

Manufacturer	
Model	

7 Lighting

Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	120 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.59 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	89%	OK
Manufacturer/Model	MRXBOXAB-ECO2	
Commissioning		
9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	1.3775 kWp	
Orientation	South	
Pitch	30°	
Overshading	None or very little	
Manufacturer		
MCS certificate		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

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

Date: Tue 02 Jan 2024 13:53:35

Project Information			
Assessed By	Harry Hinchliffe	Building Type	Flat, Mid-terrace
OCDEA Registration	EES/027143	Assessment Date	2024-01-02

Dwelling Details			
Assessment Type	As designed	Total Floor Area	107 m ²
Site Reference	Flat E - Baseline	Plot Reference	16505
Address	23 Flat C Ravenshaw Street, London, NW6 1NP		

Client Details	
Name	Client
Company	Company
Address	Address, Town, AA11 1AA

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

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Mains gas		
Target carbon dioxide emission rate	9.02 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	3.97 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	47.03 kWh _{PE} /m ²		
Dwelling primary energy	20.74 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	25.4 kWh/m ²		
Dwelling fabric energy efficiency	17.8 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	0.15	Roof (1) (0.15)	OK
Windows, doors, and roof windows	1.6	0.54	Rear Velux (1.2)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	45.96	0.18	
Exposed wall: Walls (2)	27.29	0.18	
Exposed roof: Roof (1)	47.53	0.15	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
NE Windows, Glazing	2.67	North East	1.0	0.4 (!)
SW Windows, Glazing	7.66	South West	1.0	0.4 (!)
Rear Velux, Velux Rooflights	0.72	South West	1.0	1.2
Front Velux, Velux Rooflights	1.44	South West	1.0	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.019 (!)	
External wall	E3: Sill	Calculated by person with suitable expertise	0.022 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E4: Jamb	Calculated by person with suitable expertise	0.017 (!)	
External wall	E7: Party floor between dwellings (in blocks of flats)	Calculated by person with suitable expertise	0.037 (!)	
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.042	

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

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	4 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Boiler with radiators or underfloor heating - Mains gas

Efficiency	83.5%
Emitter type	Radiators
Flow temperature	35°C
System type	Combi boiler
Manufacturer	Intergas Heating Ltd
Model	Xtreme 36
Commissioning	

Main heating system 2: Heat pump with radiators or underfloor heating - Electricity

Efficiency	123.6%
Emitter type	Underfloor
Flow temperature	35°C
System type	Heat Pump
Manufacturer	Mitsubishi Electric Europe B.V.
Model	ECODAN 5kW
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: N/A

Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: Instantaneous

Efficiency	76.0%
Manufacturer	Q-Blue B.V.
Model	QB1-21D

6 Controls

Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services

Function	
Ecodesign class	
Manufacturer	
Model	

Main heating 2 - type: Not applicable

Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: N/A

Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	120 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.59 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	89%	OK
Manufacturer/Model	MRXBOXAB-ECO2	
Commissioning		
9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	1.3775 kWp	
Orientation	South	
Pitch	30°	
Overshading	None or very little	
Manufacturer		
MCS certificate		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

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

Date: Tue 02 Jan 2024 13:54:07

Project Information			
Assessed By	Harry Hinchliffe	Building Type	Flat, Mid-terrace
OCDEA Registration	EES/027143	Assessment Date	2024-01-02

Dwelling Details			
Assessment Type	As designed	Total Floor Area	117 m ²
Site Reference	Flat F - Baseline	Plot Reference	16505
Address	23 Flat C Ravenshaw Street, London, NW6 1NP		

Client Details	
Name	Client
Company	Company
Address	Address, Town, AA11 1AA

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

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Mains gas		
Target carbon dioxide emission rate	8.54 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	3.78 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	44.49 kWh _{PE} /m ²		
Dwelling primary energy	20.26 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	24.9 kWh/m ²		
Dwelling fabric energy efficiency	17.8 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	0.15	Roof (1) (0.15)	OK
Windows, doors, and roof windows	1.6	0.54	Rear Velux (1.2)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	45.96	0.18	
Exposed wall: Walls (2)	27.29	0.18	
Exposed roof: Roof (1)	47.53	0.15	

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Air permeability test certificate reference		

4 Space heating

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Emitter type	Radiators
Flow temperature	35°C
System type	Combi boiler
Manufacturer	Intergas Heating Ltd
Model	Xtreme 36
Commissioning	

Main heating system 2: Heat pump with radiators or underfloor heating - Electricity

Efficiency	133.6%
Emitter type	Underfloor
Flow temperature	35°C
System type	Heat Pump
Manufacturer	Mitsubishi Electric Europe B.V.
Model	ECODAN 5kW
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: N/A

Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: Instantaneous

Efficiency	76.0%
Manufacturer	Q-Blue B.V.
Model	QB1-21D

6 Controls

Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services

Function	
Ecodesign class	
Manufacturer	
Model	

Main heating 2 - type: Not applicable

Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: N/A

Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	120 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
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9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	1.3775 kWp	
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Manufacturer		
MCS certificate		
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N/A		
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Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		