SAP Input

Property Details: E03 41 - Level 3

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 14.76
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	85 m²	2.75 m

Living area:	38.4 m² (fraction 0.452)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	West	1.36	2.55
W02c		Ext	West	1.39	2.55
W01b		Ext	South	0.94	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	9.41	14.51	0.18	0	False	0
Internal Elements							
Int	139.425						9
Party Elements							
P.Wall	92.4						0
P. Ceiling	85						0
Floor	85						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4386

Length	Psi-value		
3.69	0.013	E2	Other lintels (including other steel lintels)
3.69	0.021	E3	Sill
15.3	0.016	E4	Jamb
10	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0	E17	Corner (inverted internal area greater than external area)
5.5	0.12	E18	Party wall between dwellings
33.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
33.6	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E03 41 - Level 3

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 14.76
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	161.99	**(P1)**
Transmission heat loss coefficient:	24.7	
Summer heat loss coefficient:	186.72	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W02d)	0	1
West (W02c)	0	1
South (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W02d)	0.85	0.9	1	0.76	**(P8)**
West (W02c)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W02d)	0.9 x	3.47	117.51	0.38	0.8	0.76	85.34	
West (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	228.77	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	464.82	446.46	455.34	
Total summer gains	706.27	675.24	662.63	**(P5)**
Summer gain/loss ratio	3.78	3.62	3.55	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.68	23.41	23.25	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E03 42 - Level 3
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.85 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.95 kg/m²	**Fail**

Excess emissions = 3.1 kg/m² (11.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	3.54m²
Windows facing: West	2.32m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E03 42 - Level 3

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.12
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.8 m²	2.75 m

Living area:	31.4 m² (fraction 0.809)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.32	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	West	1.39	2.55
W01b		Ext	West	0.91	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	5.86	11.74	0.18	0	False	0
Internal Elements							
Int	47.96						9
Party Elements							
P.Wall	56.375						0
P. Ceiling	38.8						0
Floor	38.8						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.396

Length	Psi-value		
2.3	0.013	E2	Other lintels (including other steel lintels)

SAP Input

2.3	0.021	E3	Sill
10.2	0.016	E4	Jamb
8.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E03 42 - Level 3

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.12
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	98.59	**(P1)**
Transmission heat loss coefficient:	16.3	
Summer heat loss coefficient:	114.91	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W05e)	0	1
West (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W05e)	0.85	0.9	1	0.76	**(P8)**
West (W01b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W05e)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
West (W01b)	0.9 x	2.32	117.51	0.38	0.8	0.76	57.06	
						Total	144.12	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	278.06	267.62	273.17	
Total summer gains	431.05	411.75	399.96	**(P5)**
Summer gain/loss ratio	3.75	3.58	3.48	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.67	23.41	23.2	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 01 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	30.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.85 kg/m²	**Fail**

Excess emissions = 3.55 kg/m² (11.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.3 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 01 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.18
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	32 m² (fraction 0.836)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.133	10.24	6.89	0.18	0	False	0
Internal Elements							
Int	47.575						9
Party Elements							
P.Wall	52.525						0
P. Ceiling	38.3						0
Floor	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3921

Length	**Psi-value**		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
4.46	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.018	0.03	E3	Sill
19.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 01 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.18
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	100.8	**(P1)**
Transmission heat loss coefficient:	20.6	
Summer heat loss coefficient:	121.41	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	174	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.73	265.36	270.79	
Total summer gains	463.98	439.37	412.27	**(P5)**
Summer gain/loss ratio	3.82	3.62	3.4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.74	23.44	23.12	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 41.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 02 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.81 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.65 kg/m²	**Fail**

Excess emissions = 2.84 kg/m² (10.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.33m²
Windows facing: North	3.54m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 02 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.35
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	41.9 m²	2.75 m

Living area:	21.3 m² (fraction 0.508)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.33	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	North	1.698	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	18.975	7.87	11.11	0.18	0	False	0
Internal Elements							
Int	57.475						9
Party Elements							
P.Wall	57.75						0
P. Ceiling	41.9						0
Floor	41.9						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3974

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
7.56	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.088	0.03	E3	Sill
21.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 02 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.35
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	95.06	**(P1)**
Transmission heat loss coefficient:	19.3	
Summer heat loss coefficient:	114.33	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W04d)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W04d)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W04d)	0.9 x	4.33	81.19	0.38	0.8	0.76	73.58	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	133.73	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	290.86	279.83	285.5	
Total summer gains	435.53	413.56	394.23	**(P5)**
Summer gain/loss ratio	3.81	3.62	3.45	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.72	23.43	23.16	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 03 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.36 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.35 kg/m²	**Fail**

Excess emissions = 1.99 kg/m² (7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.63m²
Windows facing: North	3.54m²
Windows facing: East	4.63m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 03 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 225.7
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.7 m²	2.75 m

Living area:	24.4 m² (fraction 0.558)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W07A	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W07A	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W07A	16mm or more	0.8	0.38	1.3	4.63	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
E-W07A	16mm or more	0.8	0.38	1.3	4.63	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W07A		Ext	North	1.815	2.55
W02c		Ext	North	1.39	2.55
E-W07A		Ext	East	1.815	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	26.125	12.8	13.32	0.18	0	False	14
Internal Elements							
Int	78.925						9
Party Elements							
P.Wall	55						20
P. Ceiling	43.7						100
Floor	43.7						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3147

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
7.8	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
5.02	0.03	E3	Sill
20	0	P3	Intermediate floor between dwellings (in blocks of flats)
20	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 03 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 225.7
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	107.08	**(P1)**
Transmission heat loss coefficient:	26.4	
Summer heat loss coefficient:	133.51	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W07A)	0	1
North (W02c)	0	1
East (E-W07A)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W07A)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (E-W07A)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W07A)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (E-W07A)	0.9 x	4.63	117.51	0.38	0.8	0.76	113.87	
						Total	252.7	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.57	287.21	292.99	
Total summer gains	569.64	539.91	506.05	**(P5)**
Summer gain/loss ratio	4.27	4.04	3.79	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.42	0.42	0.42	
Threshold temperature	20.69	22.36	22.01	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 04 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	22.92 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.59 kg/m²	**Fail**

Excess emissions = 1.67 kg/m² (7.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	3.54m²
Windows facing: North	3.54m²
Windows facing: North	4.12m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 04 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.79
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.5 m²	2.75 m

Living area:	27.4 m² (fraction 0.406)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	North	1.39	2.55
W02c		Ext	North	1.39	2.55
W03d		Ext	North	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.875	11.2	17.68	0.18	0	False	0
Internal Elements							
Int	125.95						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	67.5						0
Floor	67.5						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2652

Length	Psi-value		
4.395	0.067	E2	Other lintels (including other steel lintels)
4.395	0.03	E3	Sill
15.3	0.045	E4	Jamb
12.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
17.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 04 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.79
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	147.02	**(P1)**
Transmission heat loss coefficient:	24.7	
Summer heat loss coefficient:	171.7	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W05e)	0	1
North (W02c)	0	1
North (W03d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W05e)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W05e)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	190.31	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	401.04	385.28	392.73	
Total summer gains	606.94	575.59	547.48	**(P5)**
Summer gain/loss ratio	3.53	3.35	3.19	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.42	23.13	22.87	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 05 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.01 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.07 kg/m²	**Fail**

Excess emissions = 3.06 kg/m² (12.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	4.12m²
Windows facing: East	3.4m²
Windows facing: North	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 05 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.15
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m

Living area:	35.2 m² (fraction 0.433)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08a	16mm or more	0.8	0.38	1.3	7.1	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W08a	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04a	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08a		Ext	North	2.785	2.55
W03d		Ext	North	1.615	2.55
W08a		Ext	East	1.335	2.55
W01b		Ext	North	0.94	2.55
W04a		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	22.3	36.28	0.18	0	False	0

SAP Input

Internal Elements		
Int	172.975	9
Party Elements		
P.Wall	50.05	0
P. Ceiling	81.3	0
Floor	81.3	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1865

Length	Psi-value		
9.733	0.067	E2	Other lintels (including other steel lintels)
9.733	0.03	E3	Sill
27.3	0.045	E4	Jamb
23.08	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 05 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	as detailed below
Thermal mass parameter:	Calculated 19.15
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	191.83	**(P1)**
Transmission heat loss coefficient:	45	
Summer heat loss coefficient:	236.84	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08a)	0.56	0.88
North (W03d)	0	1
East (W08a)	0	1
North (W01b)	0	1
East (W04a)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08a)	0.85	0.9	0.88	0.67	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**
East (W08a)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04a)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (W08a)	0.9 x	7.1	81.19	0.38	0.8	0.67	105.06	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
East (W08a)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
North (W01b)	0.9 x	2.4	81.19	0.38	0.8	0.76	40.78	
East (W04a)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	429.33	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	911.41	862.63	804.76	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.85	3.64	3.4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.71	23.41	23.06	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 06 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.33 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.57 kg/m²	**Fail**

Excess emissions = 4.24 kg/m² (19.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.1m²
Windows facing: South	2.35m²
Windows facing: East	3.4m²
Windows facing: South	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 06 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.91
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m
Living area:	35.2 m² (fraction 0.433)	
Front of dwelling faces:	North	

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08a	16mm or more	0.8	0.38	1.3	7.1	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08a	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04a	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08a		Ext	South	2.785	2.55
W02a		Ext	South	1.36	1.725
W08a		Ext	East	1.335	2.55
W01b		Ext	South	0.94	2.55
W04a		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	20.53	38.05	0.18	0	False	0

SAP Input

Internal Elements		
Int	179.85	9
Party Elements		
P.Wall	50.05	0
P. Ceiling	81.3	0
Floor	81.3	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1894

Length	Psi-value		
9.478	0.067	E2	Other lintels (including other steel lintels)
25.65	0.045	E4	Jamb
23.6	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
9.478	0.03	E3	Sill
19	0	P3	Intermediate floor between dwellings (in blocks of flats)
19	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 06 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	as detailed below
Thermal mass parameter:	Calculated 19.91
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	184.45	**(P1)**
Transmission heat loss coefficient:	43.3	
Summer heat loss coefficient:	227.76	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08a)	0.67	0.52
South (W02a)	0	1
East (W08a)	0	1
South (W01b)	0	1
East (W04a)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08a)	0.85	0.9	0.52	0.36	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08a)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04a)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08a)	0.9 x	7.1	112.21	0.38	0.8	0.36	77.62	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08a)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
East (W04a)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	402.65	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	873.99	835.95	815.91	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.84	3.67	3.58	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.86	1.86	1.86	
Threshold temperature	21.7	23.43	23.24	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:15

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 38.3m²

Site Reference : Station Hill - Block E

Plot Reference: E05 07 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.42 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.91 kg/m²	**Fail**

Excess emissions = 4.49 kg/m² (17 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	28.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.8 kWh/m²	**Fail**

Excess energy = 4.96 kg/m² (17.2 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	1.57m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 07 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	27.9 m² (fraction 0.728)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W01a	16mm or more	0.8	0.38	1.3	1.57	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W01a		Ext	South	0.91	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.875	6.84	11.03	0.18	0	False	0
Internal Elements							
Int	56.788						9
Party Elements							
P.Wall	55.825						0
P. Ceiling	38.3						0
Floor	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4035

Length	Psi-value		
2.975	0.067	E1	Steel lintel with perforated steel base plate

SAP Input

8.55	0.045	E4	Jamb
7.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.975	0.03	E3	Sill
20.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 07 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	100.8	**(P1)**
Transmission heat loss coefficient:	17.7	
Summer heat loss coefficient:	118.45	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W01a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W01a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W01a)	0.9 x	1.57	112.21	0.38	0.8	0.76	36.87	
						Total	160.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.78	265.41	270.86	
Total summer gains	442.29	426.05	429.35	**(P5)**
Summer gain/loss ratio	3.73	3.6	3.62	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.64	23.4	23.33	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.6m²

Site Reference : Station Hill - Block E

Plot Reference: E05 08 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.94 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.75 kg/m²	**Fail**

Excess emissions = 4.81 kg/m² (19.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.3 kWh/m²	**Fail**

Excess energy = 4.54 kg/m² (15.3 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.47m²
Windows facing: South	4.33m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 08 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.5 m² (fraction 0.516)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W04c	16mm or more	0.8	0.38	1.3	4.33	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	South	1.36	2.55
W04c		Ext	South	1.698	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	25.85	7.8	18.05	0.18	0	False	0
Internal Elements							
Int	63.25						9
Party Elements							
P.Wall	52.8						0
P. Ceiling	43.6						0
Floor	43.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3215

Length	Psi-value		
3.058	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.058	0.03	E3	Sill
10.2	0.045	E4	Jamb
12.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.18	E16	Corner (normal)
19.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 1
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 08 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	106.83	**(P1)**
Transmission heat loss coefficient:	21.2	
Summer heat loss coefficient:	128.03	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W02d)	0	1
South (W04c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W02d)	0.85	0.9	1	0.76	**(P8)**
South (W04c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W02d)	0.9 x	3.47	112.21	0.38	0.8	0.76	81.49	
South (W04c)	0.9 x	4.33	112.21	0.38	0.8	0.76	101.69	
						Total	183.18	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.19	286.85	292.64	
Total summer gains	488.07	470.03	473.38	**(P5)**
Summer gain/loss ratio	3.81	3.67	3.7	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.72	23.48	23.41	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.7m²

Site Reference : Station Hill - Block E **Plot Reference:** E05 09 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	19.97 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.75 kg/m²	**Fail**

Excess emissions = 3.78 kg/m² (18.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.6 kWh/m²	**Fail**

Excess energy = 3.50 kg/m² (13.4 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.19m²
Windows facing: South	7.08m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 09 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.31
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	27.5 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.19	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.035	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	30.525	12.27	18.25	0.18	0	False	0
Internal Elements							
Int	122.65						9
Party Elements							
P.Wall	67.1						0
P. Ceiling	67.7						0
Floor	67.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2481

Length	Psi-value		
4.815	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
13.86	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.815	0.03	E3	Sill
15.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
15.9	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 09 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.31
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	159.74	**(P1)**
Transmission heat loss coefficient:	26	
Summer heat loss coefficient:	185.76	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W05e)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	288.16	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	401.7	385.89	393.31	
Total summer gains	700.4	674.05	677.62	**(P5)**
Summer gain/loss ratio	3.77	3.63	3.65	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.66	23.41	23.33	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 67.7m²

Site Reference : Station Hill - Block E

Plot Reference: E05 10 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.31 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.01 kg/m²	**Fail**

Excess emissions = 3.7 kg/m² (18.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.7 kWh/m²	**Fail**

Excess energy = 3.07 kg/m² (11.5 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 10 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.39
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	28.4 m² (fraction 0.419)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	29.975	9.97	20.01	0.18	0	False	0
Internal Elements							
Int	115.775						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	67.7						0
Floor	67.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3175

Length	Psi-value		
4.785	0.067	E2	Other lintels (including other steel lintels)

SAP Input

12	0.045	E4	Jamb
13.58	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.785	0.03	E3	Sill
24.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
24.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 10 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.39
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	147.45	**(P1)**
Transmission heat loss coefficient:	25.4	
Summer heat loss coefficient:	172.89	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	402.13	386.36	393.92	
Total summer gains	644.84	620.5	624.94	**(P5)**
Summer gain/loss ratio	3.73	3.59	3.61	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.62	23.38	23.31	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 50.12m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 11 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.6 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.94 kg/m²	**Fail**

Excess emissions = 3.34 kg/m² (13.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.75m²
Windows facing: East	2.35m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 11 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.05
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	50.12 m²	2.75 m

Living area:	30 m² (fraction 0.599)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.75	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.648	2.55
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	21.175	9.1	12.07	0.18	0	False	0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	60.775						0
P. Ceiling	50.12						0
Floor	50.12						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3694

Length	Psi-value		
4.008	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
7.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.008	0.03	E3	Sill
22.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 11 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.05
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	127.35	**(P1)**
Transmission heat loss coefficient:	21.2	
Summer heat loss coefficient:	148.6	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.75	117.51	0.38	0.8	0.76	166.01	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	223.81	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	326.71	314.14	320.38	
Total summer gains	564.29	537.95	517.28	**(P5)**
Summer gain/loss ratio	3.8	3.62	3.48	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.71	23.44	23.2	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.2m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 12 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.25 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.51 kg/m²	**Fail**

Excess emissions = 3.26 kg/m² (13.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	2.35m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 12 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.65
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	51.2 m²	2.75 m

Living area:	29.4 m² (fraction 0.574)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.7	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.628	2.55
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.625	9.05	11.58	0.18	0	False	0
Internal Elements							
Int	66.275						9
Party Elements							
P.Wall	61.875						0
P. Ceiling	51.2						0
Floor	51.2						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3789

Length	Psi-value		
3.988	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
7.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.988	0.03	E3	Sill
22.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 12 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.65
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	130.1	**(P1)**
Transmission heat loss coefficient:	21.1	
Summer heat loss coefficient:	151.18	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	222.58	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	331.5	318.73	325.05	
Total summer gains	567.78	541.31	520.87	**(P5)**
Summer gain/loss ratio	3.76	3.58	3.45	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.67	23.4	23.16	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 13 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.44 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.93 kg/m²	**Fail**

Excess emissions = 3.49 kg/m² (14.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.8 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.62m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 13 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.48
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	51.1 m²	2.75 m

Living area:	30.4 m² (fraction 0.595)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.62	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.598	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.35	10.16	10.19	0.18	0	False	0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	61.6						0
P. Ceiling	51.1						0
Floor	51.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3828

Length	Psi-value		
3.988	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.988	0.03	E3	Sill
22.22	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.22	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 13 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.48
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	134.48	**(P1)**
Transmission heat loss coefficient:	22.2	
Summer heat loss coefficient:	156.66	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.62	117.51	0.38	0.8	0.76	162.82	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	249.88	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	330.99	318.23	324.52	
Total summer gains	596.25	568.11	544.36	**(P5)**
Summer gain/loss ratio	3.81	3.63	3.47	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.73	23.45	23.19	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 42.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 14 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29.04 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.30 kg/m²	**Fail**

Excess emissions = 3.26 kg/m² (11.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.6 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 14 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 14.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	42.1 m²	2.75 m

Living area:	21.3 m² (fraction 0.506)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.75	10.24	14.51	0.18	0	False	0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	56.375						0
P. Ceiling	40.5						0
Floor	40.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3163

Length	**Psi-value**		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
10	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E25	Staggered party wall between dwellings c
4.018	0.03	E2	Other lintels (including other steel lintels)
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 14 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 14.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	103.16	**(P1)**
Transmission heat loss coefficient:	23.1	
Summer heat loss coefficient:	126.25	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	174	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	291.7	280.63	286.31	
Total summer gains	479.94	454.64	427.78	**(P5)**
Summer gain/loss ratio	3.8	3.6	3.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.7	23.4	23.09	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:14

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 15 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.66 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.52 kg/m²	**Fail**

Excess emissions = 2.86 kg/m² (10.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.41m²
Windows facing: North	3.47m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 15 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.44
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.1 m²	2.75 m

Living area:	22.3 m² (fraction 0.517)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d*	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d*	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.47	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d*		Ext	North	1.728	2.55
W02c		Ext	North	1.36	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.9	7.88	13.02	0.18	0	False	0
Internal Elements							
Int	64.35						9
Party Elements							
P.Wall	56.1						0
P. Ceiling	43.1						0
Floor	43.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3847

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
8.96	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
2.75	0.18	E16	Corner (normal)
3.088	0.03	E3	Sill
20.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 1
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 15 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.44
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	93.87	**(P1)**
Transmission heat loss coefficient:	20.1	
Summer heat loss coefficient:	113.99	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W04d*)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W04d*)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W04d*)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (W02c)	0.9 x	3.47	81.19	0.38	0.8	0.76	58.96	
						Total	133.9	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	296.01	284.77	290.52	
Total summer gains	440.88	418.67	399.39	**(P5)**
Summer gain/loss ratio	3.87	3.67	3.5	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.77	23.48	23.21	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.4m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 16 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.2 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.62 kg/m²	**Fail**

Excess emissions = 3.42 kg/m² (12.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	High	**Fail**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.63m²
Windows facing: North	3.54m²
Windows facing: East	4.63m²
Ventilation rate:	2.00
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 16 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 53.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.4 m²	2.75 m

Living area:	22.6 m² (fraction 0.521)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W07b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W07b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W07b	16mm or more	0.8	0.38	1.3	4.63	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W07b	16mm or more	0.8	0.38	1.3	4.63	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W07b		Ext	North	1.815	2.55
W02c		Ext	North	1.39	2.55
W07b		Ext	East	1.815	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.2	12.8	11.4	0.18	0	False	0
Internal Elements							
Int	64.35						9
Party Elements							
P.Wall	51.57						0
P. Ceiling	43.4						0
Floor	43.4						40

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3325

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
8.26	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
2.75	0.18	E16	Corner (normal)
5.02	0.03	E3	Sill
19	0	P3	Intermediate floor between dwellings (in blocks of flats)
19	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

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SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 16 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 53.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	78.77	**(P1)**
Transmission heat loss coefficient:	25.9	
Summer heat loss coefficient:	104.69	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W07b)	0	1
North (W02c)	0	1
East (W07b)	0	1

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Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W07b)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (W07b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W07b)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (W07b)	0.9 x	4.63	117.51	0.38	0.8	0.76	113.87	
						Total	252.7	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	297.27	285.97	291.73	
Total summer gains	568.35	538.67	504.79	**(P5)**
Summer gain/loss ratio	5.43	5.15	4.82	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.63	1.63	1.63	
Threshold temperature	23.06	24.67	24.25	**(P7)**
Likelihood of high internal temperature	**Medium**	**High**	**High**	

Assessment of likelihood of high internal temperature: High

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 72.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 17 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.07 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.08 kg/m²	**Fail**

Excess emissions = 0.01 kg/m² (0 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.3 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	7.08m²
Ventilation rate:	2.20
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 17 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 218.1
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	28.4 m² (fraction 0.393)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	26.95	13.78	13.17	0.18	0	False	14
Internal Elements							
Int	130.35						9
Party Elements							
P.Wall	69.85						20
P. Ceiling	72.3						100
Floor	72.3						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3591

Length	Psi-value		
5.408	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
12.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
5.408	0.03	E3	Sill
25.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 17 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 218.1
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	144.35	**(P1)**
Transmission heat loss coefficient:	29.1	
Summer heat loss coefficient:	173.42	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	7.08	81.19	0.38	0.8	0.76	120.31	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.48	402.9	410.58	
Total summer gains	672.81	637.05	600.96	**(P5)**
Summer gain/loss ratio	3.88	3.67	3.47	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.47	0.47	0.47	
Threshold temperature	20.35	22.05	21.74	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Medium**	**Slight**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.4m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 18 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.14 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.34 kg/m²	**Fail**

Excess emissions = 2.2 kg/m² (9.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.7 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	3.54m²
Windows facing: East	3.53m²
Windows facing: East	4.12m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 18 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.21
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.4 m²	2.75 m

Living area:	36 m² (fraction 0.442)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08e	16mm or more	0.8	0.38	1.3	7.1	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W08e	16mm or more	0.8	0.38	1.3	3.53	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08e		Ext	North	2.785	2.55
W02c		Ext	North	1.39	2.55
W08e		Ext	East	1.385	2.55
W03d		Ext	East	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	52.525	18.29	34.24	0.18	0	False	0
Internal Elements							
Int	164.725						9
Party Elements							
P.Wall	50.875						0
P. Ceiling	81.4						0
Floor	81.4						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1888

Length	Psi-value		
7.175	0.013	E2	Other lintels (including other steel lintels)
20.4	0.016	E4	Jamb
26.8	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
7.175	0.021	E3	Sill
18.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 18 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.21
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	177.29	**(P1)**
Transmission heat loss coefficient:	38.7	
Summer heat loss coefficient:	215.97	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W08e)	0	1
North (W02c)	0	1
East (W08e)	0	1
East (W03d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W08e)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (W08e)	0.85	0.9	1	0.76	**(P8)**
East (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W08e)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (W08e)	0.9 x	3.53	117.51	0.38	0.8	0.76	86.82	
East (W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
						Total	368.95	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	451.61	433.61	441.77	
Total summer gains	846.93	802.56	754.3	**(P5)**
Summer gain/loss ratio	3.92	3.72	3.49	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.79	23.49	23.17	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 19 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.85 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.61 kg/m²	**Fail**

Excess emissions = 3.76 kg/m² (18 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.14m²
Windows facing: South	4.33m²
Windows facing: East	7.14m²
Windows facing: East	4.12m²
Ventilation rate:	3.00
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 19 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.9 m²	2.75 m

Living area:	36.3 m² (fraction 0.443)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W04e	16mm or more	0.8	0.38	1.3	4.33	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08f		Ext	South	2.8	2.55
W04e		Ext	South	1.698	2.55
W08f		Ext	East	2.8	2.55
W03d		Ext	East	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	53.075	22.73	30.35	0.18	0	False	0
Internal Elements							
Int	166.925						9
Party Elements							
P.Wall	52.25						0
P. Ceiling	81.9						0
Floor	81.9						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.129

Length	Psi-value		
8.913	0.013	E2	Other lintels (including other steel lintels)
20.4	0.016	E4	Jamb
3.6	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
8.913	0.021	E3	Sill
19	0	P3	Intermediate floor between dwellings (in blocks of flats)
19	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 19 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	222.97	**(P1)**
Transmission heat loss coefficient:	40.4	
Summer heat loss coefficient:	263.37	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08f)	0	1
South (W04e)	0	1
East (W08f)	0	1
East (W03d)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08f)	0.85	0.9	1	0.76	**(P8)**
South (W04e)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08f)	0.9 x	7.14	112.21	0.38	0.8	0.76	167.68	
South (W04e)	0.9 x	4.33	112.21	0.38	0.8	0.76	101.69	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
East (W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
						Total	546.31	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	453.24	435.18	443.36	
Total summer gains	1026.45	981.49	952.77	**(P5)**
Summer gain/loss ratio	3.9	3.73	3.62	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.77	23.5	23.29	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 49.5m²

Site Reference : Station Hill - Block E **Plot Reference:** E05 20 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	22.94 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.98 kg/m²	**Fail**

Excess emissions = 4.04 kg/m² (17.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.0 kWh/m²	**Fail**

Excess energy = 3.97 kg/m² (14.7 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.04m²
Windows facing: South	4.04m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 20 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.3
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	49.5 m²	2.75 m

Living area:	28.7 m² (fraction 0.58)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03e	16mm or more	0.8	0.38	1.3	4.04	1
W03e	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03e		Ext	South	1.585	2.55
W03e		Ext	South	1.585	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.35	8.08	12.27	0.18	0	False	0
Internal Elements							
Int	67.65						9
Party Elements							
P.Wall	60.775						0
P. Ceiling	49.5						0
Floor	49.5						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.3688			
	Length	**Psi-value**		
	3.17	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
9.24	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.17	0.021	E3	Sill
22	0	P3	Intermediate floor between dwellings (in blocks of flats)
22	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 20 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.3
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	116.8	**(P1)**
Transmission heat loss coefficient:	19.7	
Summer heat loss coefficient:	136.49	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W03e)	0	1
South (W03e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W03e)	0.85	0.9	1	0.76	**(P8)**
South (W03e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
						Total	189.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	324.11	311.67	317.91	
Total summer gains	520.81	501.43	505.13	**(P5)**
Summer gain/loss ratio	3.82	3.67	3.7	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.73	23.49	23.41	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 40m²

Site Reference : Station Hill - Block E **Plot Reference:** E05 21 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.67 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.50 kg/m²	**Fail**

Excess emissions = 4.83 kg/m² (18.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.0 kWh/m²	**Fail**

Excess energy = 4.15 kg/m² (13.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.04m²
Windows facing: South	4.04m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 21 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.71
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	40 m²	2.75 m

Living area:	29.2 m² (fraction 0.73)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03e	16mm or more	0.8	0.38	1.3	4.04	1
W03e	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03e		Ext	South	1.585	2.55
W03e		Ext	South	1.585	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	8.08	19.42	0.18	0	False	0
Internal Elements							
Int	56.485						9
Party Elements							
P.Wall	46.475						0
P. Ceiling	40						0
Floor	40						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.2611			
	Length	**Psi-value**		
	3.17	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
12.14	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.17	0.021	E3	Sill
16.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
16.9	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 1
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 21 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.71
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	105.27	**(P1)**
Transmission heat loss coefficient:	20.7	
Summer heat loss coefficient:	125.93	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W03e)	0	1
South (W03e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W03e)	0.85	0.9	1	0.76	**(P8)**
South (W03e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
						Total	189.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	282.8	272.13	277.66	
Total summer gains	479.51	461.89	464.89	**(P5)**
Summer gain/loss ratio	3.81	3.67	3.69	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.72	23.48	23.4	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 69m²

Site Reference : Station Hill - Block E **Plot Reference:** E05 22 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	19.91 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.37 kg/m²	**Fail**

Excess emissions = 1.46 kg/m² (7.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.1 kWh/m²	**Fail**

Excess energy = 1.75 kg/m² (06.6 %)

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2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	7.08m²
Ventilation rate:	2.20
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 22 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 86.68
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	69 m²	2.75 m

Living area:	28.7 m² (fraction 0.416)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.27	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.065	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.775	12.35	15.42	0.18	0	False	0
Internal Elements							
Int	121.275						9
Party Elements							
P.Wall	69.85						70
P. Ceiling	69						0
Floor	69						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3114

Length	Psi-value		
4.845	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
10.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.845	0.021	E3	Sill
25.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

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SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 22 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 86.68
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	137.76	**(P1)**
Transmission heat loss coefficient:	26.7	
Summer heat loss coefficient:	164.45	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	290.04	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	406.85	390.82	398.33	
Total summer gains	707.5	680.86	684.49	**(P5)**
Summer gain/loss ratio	4.3	4.14	4.16	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.39	1.39	1.39	
Threshold temperature	21.7	23.43	23.36	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

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Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:13

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 68.1m²

Site Reference : Station Hill - Block E

Plot Reference: E05 23 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.12 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.14 kg/m²	**Fail**

Excess emissions = 4.02 kg/m² (20 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.5 kWh/m²	**Fail**

Excess energy = 3.73 kg/m² (13.9 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.19m²
Windows facing: South	7.08m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 23 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 17.08
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	68.1 m²	2.75 m

Living area:	26.24 m² (fraction 0.385)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.19	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.035	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.858	12.27	15.59	0.18	0	False	0
Internal Elements							
Int	129.25						9
Party Elements							
P.Wall	67.65						0
P. Ceiling	68.1						0
Floor	68.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3503

Length	Psi-value		
1.78	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
16.7	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
1.78	0.021	E3	Sill
1.78	0.067	E2	Other lintels (including other steel lintels)
1.78	0.03	E3	Sill
10.2	0.045	E4	Jamb
24.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
24.6	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

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SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 23 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 17.08
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	154.5	**(P1)**
Transmission heat loss coefficient:	27.7	
Summer heat loss coefficient:	182.23	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	288.16	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	403.29	387.41	394.86	
Total summer gains	702	675.58	679.18	**(P5)**
Summer gain/loss ratio	3.85	3.71	3.73	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.73	23.49	23.41	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 66m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 24 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.38 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.88 kg/m²	**Fail**

Excess emissions = 4.5 kg/m² (21 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.1 kWh/m²	**Fail**

Excess energy = 2.71 kg/m² (08.9 %)

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2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	7.08m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 24 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.42
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	66 m²	2.75 m

Living area:	26.8 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.27	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.065	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	45.375	12.35	33.03	0.18	0	False	0
Internal Elements							
Int	120.45						9
Party Elements							
P.Wall	47.575						0
P. Ceiling	66						0
Floor	66						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2134

Length	Psi-value		
4.845	0.067	E2	Other lintels (including other steel lintels)

SAP Input

4.845	0.03	E3	Sill
15.3	0.045	E4	Jamb
23.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5	0.12	E18	Party wall between dwellings
17.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 24 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.42
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	155.73	**(P1)**
Transmission heat loss coefficient:	30.9	
Summer heat loss coefficient:	186.61	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	290.04	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	394.83	379.31	386.62	
Total summer gains	695.48	669.35	672.78	**(P5)**
Summer gain/loss ratio	3.73	3.59	3.61	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.61	23.37	23.29	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 52.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 25 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.96 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.28 kg/m²	**Fail**

Excess emissions = 3.32 kg/m² (13.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 25 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.22
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52.3 m²	2.75 m

Living area:	22.9 m² (fraction 0.438)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	East	2.628	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.9	10.24	10.66	0.18	0	False	0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	57.75						0
P. Ceiling	52.3						0
Floor	52.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3616

Length	Psi-value		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
7.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.018	0.03	E3	Sill
21	0	P3	Intermediate floor between dwellings (in blocks of flats)
21	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 25 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.22
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	137.64	**(P1)**
Transmission heat loss coefficient:	22.1	
Summer heat loss coefficient:	159.77	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	251.85	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	336.28	323.29	329.67	
Total summer gains	603.62	575.14	551.23	**(P5)**
Summer gain/loss ratio	3.78	3.6	3.45	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.7	23.42	23.17	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 26 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.47 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.96 kg/m²	**Fail**

Excess emissions = 3.49 kg/m² (14.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	3.54m²
Ventilation rate:	3.00
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 26 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.01
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	51.1 m²	2.75 m

Living area:	29.4 m² (fraction 0.575)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	East	2.628	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.625	10.24	10.39	0.18	0	False	0
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	61.875						0
P. Ceiling	51.1						0
Floor	51.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3825

Length	Psi-value		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
7	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.018	0.03	E3	Sill
22.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 26 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.01
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	139.12	**(P1)**
Transmission heat loss coefficient:	22.4	
Summer heat loss coefficient:	161.53	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	251.85	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	330.99	318.23	324.52	
Total summer gains	598.33	570.08	546.09	**(P5)**
Summer gain/loss ratio	3.7	3.53	3.38	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.62	23.35	23.1	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 27 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.91 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.34 kg/m²	**Fail**

Excess emissions = 3.43 kg/m² (13.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.7 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	4.41m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 27 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.94
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.7 m² (fraction 0.521)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	East	1.728	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	7.95	9.65	0.18	0	False	0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.125						0
P. Ceiling	43.6						0
Floor	43.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4263

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.58	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.118	0.03	E3	Sill
21.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 27 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.94
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	114.74	**(P1)**
Transmission heat loss coefficient:	19.1	
Summer heat loss coefficient:	133.81	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W04d)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	195.53	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.17	286.83	292.62	
Total summer gains	505.73	482.36	464.64	**(P5)**
Summer gain/loss ratio	3.78	3.6	3.47	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.69	23.41	23.18	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 68.5m²

Site Reference : Station Hill - Block E

Plot Reference: E05 28 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.04 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.59 kg/m²	**Fail**

Excess emissions = 3.55 kg/m² (17.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.1 kWh/m²	**Fail**

Excess energy = 3.12 kg/m² (12.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 28 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.97
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	68.5 m²	2.75 m

Living area:	27.8 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.27	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.065	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	9.97	17.53	0.18	0	False	0
Internal Elements							
Int	121.55						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	68.5						0
Floor	68.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3381

Length	Psi-value		
4.785	0.067	E2	Other lintels (including other steel lintels)

SAP Input

12	0.045	E4	Jamb
11.66	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.785	0.03	E3	Sill
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 28 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.97
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	149.19	**(P1)**
Transmission heat loss coefficient:	24.8	
Summer heat loss coefficient:	173.97	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	405.34	389.43	397.06	
Total summer gains	648.05	623.58	628.08	**(P5)**
Summer gain/loss ratio	3.73	3.58	3.61	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.61	23.37	23.3	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.3m²

Site Reference : Station Hill - Block E

Plot Reference: E05 29 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.83 kg/m²	**Fail**

Excess emissions = 4.53 kg/m² (18.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.5 kWh/m²	**Fail**

Excess energy = 5.19 kg/m² (19.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.41m²
Windows facing: South	3.54m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 29 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.03
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.3 m²	2.75 m

Living area:	23 m² (fraction 0.531)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.728	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	7.95	9.65	0.18	0	False	0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.675						0
P. Ceiling	43.3						0
Floor	43.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.429

Length	**Psi-value**		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.58	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.118	0.03	E3	Sill
21.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 29 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.03
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	110.03	**(P1)**
Transmission heat loss coefficient:	19.1	
Summer heat loss coefficient:	129.14	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W04d)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (W02c)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	186.71	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	296.87	285.59	291.35	
Total summer gains	490.41	472.3	475.56	**(P5)**
Summer gain/loss ratio	3.8	3.66	3.68	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.71	23.47	23.39	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 42m²

Site Reference : Station Hill - Block E

Plot Reference: E05 30 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.94 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.54 kg/m²	**Fail**

Excess emissions = 4.6 kg/m² (18.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	28.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.0 kWh/m²	**Fail**

Excess energy = 5.02 kg/m² (17.9 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.41m²
Windows facing: South	2.35m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 30 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.14
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	42 m²	2.75 m

Living area:	21.3 m² (fraction 0.507)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.728	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.325	6.76	10.57	0.18	0	False	0
Internal Elements							
Int	61.325						9
Party Elements							
P.Wall	58.025						0
P. Ceiling	42						0
Floor	42						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.5023

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
16.38	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.088	0.03	E3	Sill
21.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English
Wind turbine: No
Photovoltaics: None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 30 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.14
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	102.91	**(P1)**
Transmission heat loss coefficient:	19	
Summer heat loss coefficient:	121.87	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W04d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
						Total	158.76	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	291.44	280.41	286.14	
Total summer gains	456.01	439.17	442.78	**(P5)**
Summer gain/loss ratio	3.74	3.6	3.63	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.65	23.41	23.34	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 69.5m²

Site Reference : Station Hill - Block E

Plot Reference: E05 31 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.42 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.65 kg/m²	**Fail**

Excess emissions = 3.23 kg/m² (15.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.2 kWh/m²	**Fail**

Excess energy = 1.92 kg/m² (07.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.22m²
Windows facing: South	4.7m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 31 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.81
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	69.5 m²	2.75 m

Living area:	29.2 m² (fraction 0.42)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05a	16mm or more	0.8	0.38	1.3	4.22	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05a		Ext	South	2.085	2.025
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.375	8.92	25.46	0.18	0	False	0
Internal Elements							
Int	122.1						9
Party Elements							
P.Wall	64.075						0
P. Ceiling	69.5						0
Floor	69.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2688

Length	Psi-value		
4.805	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.805	0.021	E3	Sill
10.95	0.016	E4	Jamb
15.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
2.75	0.12	E25	Staggered party wall between dwellings
23.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 31 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.81
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	145.06	**(P1)**
Transmission heat loss coefficient:	24.8	
Summer heat loss coefficient:	169.91	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05a)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05a)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05a)	0.9 x	4.22	112.21	0.38	0.8	0.76	99.11	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	209.49	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	409.67	393.63	401.44	
Total summer gains	626.82	603.11	608.13	**(P5)**
Summer gain/loss ratio	3.69	3.55	3.58	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.58	23.34	23.27	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:12

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 82.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 32 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.26 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.82 kg/m²	**Fail**

Excess emissions = 3.56 kg/m² (16.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.1m²
Windows facing: South	2.35m²
Windows facing: East	3.53m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 32 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.27
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	82.7 m²	2.75 m

Living area:	35.9 m² (fraction 0.434)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08d	16mm or more	0.8	0.38	1.3	7.1	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08d	16mm or more	0.8	0.38	1.3	3.53	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08d		Ext	South	2.785	2.55
W02a		Ext	South	1.36	1.725
W08d		Ext	East	1.385	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	56.375	20.12	36.26	0.18	0	False	0
Internal Elements							
Int	177.1						9
Party Elements							
P.Wall	50.875						0

SAP Input

P. Ceiling	82.7	0
Floor	82.7	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1685

Length	Psi-value		
8.843	0.013	E2	Other lintels (including other steel lintels)
8.843	0.021	E3	Sill
22.2	0.016	E4	Jamb
23.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 32 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.27
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	210.14	**(P1)**
Transmission heat loss coefficient:	40.9	
Summer heat loss coefficient:	251.03	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08d)	0	1
South (W02a)	0	1
East (W08d)	0	1
East (W04d)	0	1
East (W03a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08d)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08d)	0.9 x	7.1	112.21	0.38	0.8	0.76	166.74	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08d)	0.9 x	3.53	117.51	0.38	0.8	0.76	86.82	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
						Total	484.36	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	455.84	437.66	445.88	
Total summer gains	964.46	922.02	895.72	**(P5)**
Summer gain/loss ratio	3.84	3.67	3.57	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	

SAP 2012 Overheating Assessment

Thermal mass temperature increment	1.87	1.87	1.87
Threshold temperature	21.71	23.44	23.23 **(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 83.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 33 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.09 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.66 kg/m²	**Fail**

Excess emissions = 3.57 kg/m² (15.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	2.32m²
Windows facing: East	7.14m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Windows facing: North	4.04m²
Ventilation rate:	3.00
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 33 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.38
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	83.5 m²	2.75 m

Living area:	38.3 m² (fraction 0.459)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08f	16mm or more	0.8	0.38	1.3	7.1	1
W01b	16mm or more	0.8	0.38	1.3	2.32	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1
W03d	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08f		Ext	North	2.785	2.55
W01b		Ext	North	0.91	2.55
W08f		Ext	East	2.8	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725
W03d		Ext	North	1.585	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.133	27.74	22.39	0.18	0	False	0

SAP Input

Internal Elements		
Int	170.5	9
Party Elements		
P.Wall	57.2	0
P. Ceiling	83.5	0
Floor	83.5	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.166

Length	Psi-value		
11.393	0.013	E2	Other lintels (including other steel lintels)
11.393	0.021	E3	Sill
28.95	0.016	E4	Jamb
9.46	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 33 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.38
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	227.33	**(P1)**
Transmission heat loss coefficient:	46.6	
Summer heat loss coefficient:	273.96	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08f)	0	1
North (W01b)	0	1
East (W08f)	0	1
East (W04d)	0	1
East (W03a)	0	1
North (W03d)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08f)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (W08f)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W01b)	0.9 x	2.32	81.19	0.38	0.8	0.76	39.42	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
North (W03d)	0.9 x	4.04	81.19	0.38	0.8	0.76	68.65	
						Total	579.93	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	458.4	440.11	448.36	
Total summer gains	1078.66	1020.04	943.31	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.94	3.72	3.44	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.81	23.49	23.11	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 54.6m²

Site Reference : Station Hill - Block E

Plot Reference: E05 34 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.45 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.95 kg/m²	**Fail**

Excess emissions = 2.5 kg/m² (9.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 34 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.75 m

Living area:	31.9 m² (fraction 0.584)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	10.82	13.1	0.18	0	False	0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	65.175						0
P. Ceiling	54.6						0
Floor	54.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3344

Length	Psi-value		
4.243	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.243	0.021	E3	Sill
10.2	0.016	E4	Jamb
9.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
23.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 34 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	118.92	**(P1)**
Transmission heat loss coefficient:	23.7	
Summer heat loss coefficient:	142.65	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
						Total	183.86	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.96	339.5	
Total summer gains	545.3	516.82	488.99	**(P5)**
Summer gain/loss ratio	3.82	3.62	3.43	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.75	23.45	23.15	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 52m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 35 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.31 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.39 kg/m²	**Fail**

Excess emissions = 5.08 kg/m² (19.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	41.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	7.14m²
Windows facing: East	7.14m²
Ventilation rate:	3.30
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 35 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.8
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52 m²	2.75 m

Living area:	30.6 m² (fraction 0.588)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W08f		Ext	North	2.8	2.55
W08f		Ext	East	2.8	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	18.4	9.1	0.18	0	False	0
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	57.2						0
P. Ceiling	52						0
Floor	52						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2699

Length	Psi-value		
7.215	0.013	E2	Other lintels (including other steel lintels)
7.215	0.021	E3	Sill
15.3	0.016	E4	Jamb
5.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 35 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.8
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	155.73	**(P1)**
Transmission heat loss coefficient:	31.8	
Summer heat loss coefficient:	187.52	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W08f)	0	1
East (W08f)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W08f)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
						Total	366.94	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	334.96	322.03	328.38	
Total summer gains	728.37	688.97	638.44	**(P5)**
Summer gain/loss ratio	3.88	3.67	3.4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.8	23.49	23.12	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 71m²

Site Reference : Station Hill - Block E

Plot Reference: E05 36 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.42 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.02 kg/m²	**Fail**

Excess emissions = 1.6 kg/m² (6.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 36 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.86
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	71 m²	2.75 m

Living area:	28.9 m² (fraction 0.407)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.6	14.36	14.24	0.18	0	False	0
Internal Elements							
Int	125.125						9
Party Elements							
P.Wall	69.025						0
P. Ceiling	71						0
Floor	71						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.296

Length	Psi-value		
5.633	0.013	E2	Other lintels (including other steel lintels)
5.633	0.021	E3	Sill
15.3	0.016	E4	Jamb
9.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
25.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 36 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.86
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	148.19	**(P1)**
Transmission heat loss coefficient:	28.8	
Summer heat loss coefficient:	176.97	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	244.01	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	414.53	398.16	405.76	
Total summer gains	678.52	642.17	604.16	**(P5)**
Summer gain/loss ratio	3.83	3.63	3.41	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.72	23.42	23.1	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 53.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 37 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.8 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.48 kg/m²	**Fail**

Excess emissions = 4.68 kg/m² (17.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.3 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	5.27m²
Windows facing: East	5.27m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 37 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.51
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	53.6 m²	2.75 m

Living area:	28.8 m² (fraction 0.537)
Front of dwelling faces:	East

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05c		Ext	North	2.065	2.55
W05c		Ext	East	2.065	2.55
W05e		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.65	14.08	20.57	0.18	0	False	0
Internal Elements							
Int	92.4						9
Party Elements							
P.Wall	49.225						0
P. Ceiling	53.6						0
Floor	53.6						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3443

Length	Psi-value		
5.52	0.067	E2	Other lintels (including other steel lintels)
5.52	0.03	E3	Sill
15.3	0.045	E4	Jamb
25.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.18	E16	Corner (normal)
25.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 37 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.51
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	141.06	**(P1)**
Transmission heat loss coefficient:	33	
Summer heat loss coefficient:	174.09	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W05c)	0	1
East (W05c)	0	1
East (W05e)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W05c)	0.85	0.9	1	0.76	**(P8)**
East (W05c)	0.85	0.9	1	0.76	**(P8)**
East (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W05c)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
East (W05c)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
East (W05e)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	306.23	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	342	328.76	335.23	
Total summer gains	668.89	634.99	598.67	**(P5)**
Summer gain/loss ratio	3.84	3.65	3.44	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.73	23.44	23.13	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 54.6m²

Site Reference : Station Hill - Block E

Plot Reference: E05 38 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.55 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.95 kg/m²	**Fail**

Excess emissions = 2.4 kg/m² (9.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.62m²
Windows facing: North	5.19m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 38 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.64
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.75 m

Living area:	31.1 m² (fraction 0.57)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06c	16mm or more	0.8	0.38	1.3	6.62	1
W05c	16mm or more	0.8	0.38	1.3	5.19	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.598	2.55
W05c		Ext	North	2.035	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.375	11.81	11.57	0.18	0	False	0
Internal Elements							
Int	82.775						9
Party Elements							
P.Wall	62.975						0
P. Ceiling	55.8						0
Floor	55.8						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3226

Length	**Psi-value**		
4.633	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.633	0.021	E3	Sill
10.2	0.016	E4	Jamb
7.6	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
22.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.9	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 38 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.64
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	123.87	**(P1)**
Transmission heat loss coefficient:	24.2	
Summer heat loss coefficient:	148.09	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W05c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W05c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.62	81.19	0.38	0.8	0.76	112.49	
North (W05c)	0.9 x	5.19	81.19	0.38	0.8	0.76	88.19	
						Total	200.68	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.97	339.5	
Total summer gains	563.5	533.64	502.67	**(P5)**
Summer gain/loss ratio	3.81	3.6	3.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.71	23.41	23.1	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 72.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 39 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.33 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.84 kg/m²	**Fail**

Excess emissions = 1.51 kg/m² (6.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	8.08m²
Windows facing: North	3.54m²
Ventilation rate:	2.00
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 39 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 17.46
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.04	2
W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.585	2.55
W05e		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.05	11.62	38.43	0.18	0	False	0
Internal Elements							
Int	140.25						9
Party Elements							
P.Wall	49.775						0
P. Ceiling	72.3						0
Floor	72.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1939

Length	**Psi-value**		
4.56	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.56	0.021	E3	Sill
15.3	0.016	E4	Jamb
27.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
18.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 39 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 17.46
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	131.22	**(P1)**
Transmission heat loss coefficient:	31	
Summer heat loss coefficient:	162.21	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W05e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	8.08	81.19	0.38	0.8	0.76	137.3	
North (W05e)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	197.45	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.76	403.19	410.96	
Total summer gains	633.37	600.64	571.5	**(P5)**
Summer gain/loss ratio	3.9	3.7	3.52	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.78	23.48	23.2	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:11

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 72.3m²

Site Reference : Station Hill - Block E

Plot Reference: E05 40 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.35 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.95 kg/m²	**Fail**

Excess emissions = 2.6 kg/m² (12.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	32.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.7 kWh/m²	**Fail**

Excess energy = 0.54 kg/m² (01.7 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	8.24m²
Windows facing: South	3.54m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 40 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 55.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	2
W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	South	1.615	2.55
W05e		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.05	11.78	38.27	0.18	0	False	0
Internal Elements							
Int	123.2						9
Party Elements							
P.Wall	49.775						0
P. Ceiling	72.3						0
Floor	72.3						40

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.2197			
	Length	**Psi-value**		
	4.62	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.62	0.021	E3	Sill
15.3	0.016	E4	Jamb
36.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 40 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 55.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	157.47	**(P1)**
Transmission heat loss coefficient:	32.4	
Summer heat loss coefficient:	189.91	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W03d)	0	1
South (W05e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W03d)	0.85	0.9	1	0.76	**(P8)**
South (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W03d)	0.9 x	8.24	112.21	0.38	0.8	0.76	193.52	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	276.66	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.72	403.15	410.91	
Total summer gains	706.5	679.81	683.87	**(P5)**
Summer gain/loss ratio	3.72	3.58	3.6	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.61	1.61	1.61	
Threshold temperature	21.33	23.09	23.01	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:10

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 85m²

Site Reference : Station Hill - Block E

Plot Reference: E05 41 - Level 5

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	19.71 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	18.95 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**
Primary pipework insulated:	No primary pipework	

Regulations Compliance Report

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	3.47m²
Windows facing: West	3.54m²
Windows facing: South	2.4m²
Ventilation rate:	1.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 41 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 216.5
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	85 m²	2.75 m

Living area:	38.4 m² (fraction 0.452)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	West	1.36	2.55
W02c		Ext	West	1.39	2.55
W01b		Ext	South	0.94	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	9.41	14.51	0.18	0	False	0
Internal Elements							
Int	139.425						9
Party Elements							
P.Wall	92.4						20
P. Ceiling	85						100
Floor	85						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4524

Length	Psi-value		
3.69	0.013	E2	Other lintels (including other steel lintels)
15.3	0.016	E4	Jamb
10	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
3.69	0.021	E3	Sill
33.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
33.6	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 41 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 216.5
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	146.56	**(P1)**
Transmission heat loss coefficient:	25.1	
Summer heat loss coefficient:	171.63	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W02d)	0	1
West (W02c)	0	1
South (W01b)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W02d)	0.85	0.9	1	0.76	**(P8)**
West (W02c)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W02d)	0.9 x	3.47	117.51	0.38	0.8	0.76	85.34	
West (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	228.77	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	464.82	446.46	455.34	
Total summer gains	706.27	675.24	662.63	**(P5)**
Summer gain/loss ratio	4.12	3.93	3.86	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.48	0.48	0.48	
Threshold temperature	20.6	22.32	22.15	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:10

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E05 42 - Level 5
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.86 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.98 kg/m²	**Fail**

Excess emissions = 3.12 kg/m² (11.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	3.54m²
Windows facing: West	2.4m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E05 42 - Level 5

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.12
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.8 m²	2.75 m

Living area:	31.4 m² (fraction 0.809)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	West	1.39	2.55
W01b		Ext	West	0.94	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	5.94	11.66	0.18	0	False	0
Internal Elements							
Int	47.96						9
Party Elements							
P.Wall	56.375						0
P. Ceiling	38.8						0
Floor	38.8						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.3956

Length	Psi-value		
2.33	0.013	E2	Other lintels (including other steel lintels)

SAP Input

2.33	0.021	E3	Sill
10.2	0.016	E4	Jamb
8.14	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E05 42 - Level 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.12
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	98.59	**(P1)**
Transmission heat loss coefficient:	16.4	
Summer heat loss coefficient:	114.99	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W05e)	0	1
West (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W05e)	0.85	0.9	1	0.76	**(P8)**
West (W01b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W05e)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
West (W01b)	0.9 x	2.4	117.51	0.38	0.8	0.76	59.03	
						Total	146.09	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	278.04	267.6	273.13	
Total summer gains	433.12	413.69	401.66	**(P5)**
Summer gain/loss ratio	3.77	3.6	3.49	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.69	23.42	23.22	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:10

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 01 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	30.61 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.51 kg/m²	**Fail**

Excess emissions = 3.9 kg/m² (12.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.62m²
Windows facing: North	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 01 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.18
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	32 m² (fraction 0.836)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.62	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.598	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.133	10.16	6.97	0.18	0	False	0
Internal Elements							
Int	47.575						9
Party Elements							
P.Wall	52.525						0
P. Ceiling	38.3						0
Floor	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4573

Length	Psi-value		
3.988	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
12.46	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.988	0.03	E3	Sill
19.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 01 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.18
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	100.8	**(P1)**
Transmission heat loss coefficient:	21.6	
Summer heat loss coefficient:	122.44	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.62	81.19	0.38	0.8	0.76	112.49	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	172.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.73	265.36	270.79	
Total summer gains	462.51	438.01	411.16	**(P5)**
Summer gain/loss ratio	3.78	3.58	3.36	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.7	23.4	23.08	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:10

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 41.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 02 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.83 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.85 kg/m²	**Fail**

Excess emissions = 0.02 kg/m² (0.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.41m²
Windows facing: North	3.54m²
Ventilation rate:	2.20
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 02 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 223.59
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	41.9 m²	2.75 m

Living area:	21.3 m² (fraction 0.508)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	North	1.728	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	18.975	7.95	11.03	0.18	0	False	14
Internal Elements							
Int	57.475						9
Party Elements							
P.Wall	57.75						20
P. Ceiling	41.9						100
Floor	41.9						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3965

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
7.58	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.118	0.03	E3	Sill
21	0	P3	Intermediate floor between dwellings (in blocks of flats)
21	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3

Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

Conservatory: No conservatory

Low energy lights: 100%

Terrain type: Dense urban

EPC language: English

Wind turbine: No

Photovoltaics: None

Assess Zero Carbon Home: No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 02 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 223.59
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	83.65	**(P1)**
Transmission heat loss coefficient:	19.3	
Summer heat loss coefficient:	102.98	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W04d)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W04d)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W04d)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	135.09	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	290.85	279.83	285.49	
Total summer gains	437	414.92	395.33	**(P5)**
Summer gain/loss ratio	4.24	4.03	3.84	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.43	0.43	0.43	
Threshold temperature	20.68	22.36	22.07	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:10

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 03 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.49 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.54 kg/m²	**Fail**

Excess emissions = 4.05 kg/m² (14.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.63m²
Windows facing: North	3.54m²
Windows facing: East	3.73m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 03 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.25
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.7 m²	2.75 m

Living area:	24.4 m² (fraction 0.558)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W07A	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W07A	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W07A	16mm or more	0.8	0.38	1.3	4.63	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
E-W07A	16mm or more	0.8	0.38	1.3	3.73	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W07A		Ext	North	1.815	2.55
W02c		Ext	North	1.39	2.55
E-W07A		Ext	East	1.463	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	26.125	11.9	14.22	0.18	0	False	0
Internal Elements							
Int	78.925						9
Party Elements							
P.Wall	55						0
P. Ceiling	43.7						0
Floor	43.7						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3234

Length	Psi-value		
4.668	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
9.664	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
4.668	0.03	E3	Sill
20	0	P3	Intermediate floor between dwellings (in blocks of flats)
20	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 03 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.25
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	115.01	**(P1)**
Transmission heat loss coefficient:	25.7	
Summer heat loss coefficient:	140.72	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W07A)	0	1
North (W02c)	0	1
East (E-W07A)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W07A)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (E-W07A)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W07A)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (E-W07A)	0.9 x	3.73	117.51	0.38	0.8	0.76	91.74	
						Total	230.57	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.57	287.21	292.99	
Total summer gains	546.15	517.78	486.58	**(P5)**
Summer gain/loss ratio	3.88	3.68	3.46	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.77	23.47	23.14	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

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Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:10

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 04 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	22.91 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.57 kg/m²	**Fail**

Excess emissions = 1.66 kg/m² (7.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.9 kWh/m²	
		OK

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2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	3.54m²
Windows facing: North	3.54m²
Windows facing: North	4.04m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 04 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.79
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.5 m²	2.75 m

Living area:	27.4 m² (fraction 0.406)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W03d	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	North	1.39	2.55
W02c		Ext	North	1.39	2.55
W03d		Ext	North	1.585	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.875	11.12	17.76	0.18	0	False	0
Internal Elements							
Int	125.95						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	67.5						0
Floor	67.5						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2651

Length	Psi-value		
4.365	0.067	E2	Other lintels (including other steel lintels)
4.365	0.03	E3	Sill
15.3	0.045	E4	Jamb
12.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
17.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 04 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.79
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	147.02	**(P1)**
Transmission heat loss coefficient:	24.6	
Summer heat loss coefficient:	171.61	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W05e)	0	1
North (W02c)	0	1
North (W03d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W05e)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W05e)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W03d)	0.9 x	4.04	81.19	0.38	0.8	0.76	68.65	
						Total	188.96	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	401.06	385.29	392.76	
Total summer gains	605.48	574.25	546.39	**(P5)**
Summer gain/loss ratio	3.53	3.35	3.18	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.41	23.13	22.87	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:10

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 05 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.01 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.07 kg/m²	**Fail**

Excess emissions = 3.06 kg/m² (12.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	4.12m²
Windows facing: East	3.4m²
Windows facing: North	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 05 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.15
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m

Living area:	35.2 m² (fraction 0.433)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08c	16mm or more	0.8	0.38	1.3	7.1	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W08c	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04a	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08c		Ext	North	2.785	2.55
W03d		Ext	North	1.615	2.55
W08c		Ext	East	1.335	2.55
W01b		Ext	North	0.94	2.55
W04a		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	22.3	36.28	0.18	0	False	0

SAP Input

Internal Elements		
Int	172.975	9
Party Elements		
P.Wall	50.05	0
P. Ceiling	81.3	0
Floor	81.3	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1865

Length	Psi-value		
9.733	0.067	E2	Other lintels (including other steel lintels)
9.733	0.03	E3	Sill
27.3	0.045	E4	Jamb
23.08	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 05 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.15
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	191.83	**(P1)**
Transmission heat loss coefficient:	45	
Summer heat loss coefficient:	236.84	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08c)	0	1
North (W03d)	0	1
East (W08c)	0	1
North (W01b)	0	1
East (W04a)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08c)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**
East (W08c)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04a)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (W08c)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
East (W08c)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
North (W01b)	0.9 x	2.4	81.19	0.38	0.8	0.76	40.78	
East (W04a)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	444.92	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	928.28	878.22	817.44	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.92	3.71	3.45	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.79	23.47	23.12	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 81.3m²

Site Reference : Station Hill - Block E

Plot Reference: E06 06 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.33 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.57 kg/m²	**Fail**

Excess emissions = 4.24 kg/m² (19.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.1m²
Windows facing: South	2.35m²
Windows facing: East	3.4m²
Windows facing: South	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 06 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.91
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m

Living area:	35.2 m² (fraction 0.433)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08a	16mm or more	0.8	0.38	1.3	7.1	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08a	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04e	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08a		Ext	South	2.785	2.55
W02a		Ext	South	1.36	1.725
W08a		Ext	East	1.335	2.55
W01b		Ext	South	0.94	2.55
W04e		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	20.53	38.05	0.18	0	False	0

SAP Input

Internal Elements		
Int	179.85	9
Party Elements		
P.Wall	50.05	0
P. Ceiling	81.3	0
Floor	81.3	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1894

Length	Psi-value		
9.478	0.067	E2	Other lintels (including other steel lintels)
25.65	0.045	E4	Jamb
23.6	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
9.478	0.03	E3	Sill
19	0	P3	Intermediate floor between dwellings (in blocks of flats)
19	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 06 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.91
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	206.58	**(P1)**
Transmission heat loss coefficient:	43.3	
Summer heat loss coefficient:	249.89	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08a)	0	1
South (W02a)	0	1
East (W08a)	0	1
South (W01b)	0	1
East (W04e)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08a)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08a)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04e)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08a)	0.9 x	7.1	112.21	0.38	0.8	0.76	166.74	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08a)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
East (W04e)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	491.78	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	966.37	925.08	903.84	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.87	3.7	3.62	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.86	1.86	1.86	
Threshold temperature	21.73	23.46	23.28	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 38.3m²

Site Reference : Station Hill - Block E

Plot Reference: E06 07 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.42 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.88 kg/m²	**Fail**

Excess emissions = 4.46 kg/m² (16.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	28.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.8 kWh/m²	**Fail**

Excess energy = 4.99 kg/m² (17.3 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.19m²
Windows facing: South	1.57m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 07 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	27.9 m² (fraction 0.728)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.19	1
W01a	16mm or more	0.8	0.38	1.3	1.57	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.035	2.55
W01a		Ext	South	0.91	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.875	6.76	11.11	0.18	0	False	0
Internal Elements							
Int	56.788						9
Party Elements							
P.Wall	55.825						0
P. Ceiling	38.3						0
Floor	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4034

Length	Psi-value		
2.945	0.067	E1	Steel lintel with perforated steel base plate

SAP Input

8.55	0.045	E4	Jamb
7.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.945	0.03	E3	Sill
20.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 07 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	97.32	**(P1)**
Transmission heat loss coefficient:	17.6	
Summer heat loss coefficient:	114.89	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W01a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W01a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
South (W01a)	0.9 x	1.57	112.21	0.38	0.8	0.76	36.87	
						Total	158.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.79	265.42	270.87	
Total summer gains	440.36	424.18	427.51	**(P5)**
Summer gain/loss ratio	3.83	3.69	3.72	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.74	23.5	23.43	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.6m²

Site Reference : Station Hill - Block E **Plot Reference:** E06 08 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.94 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.75 kg/m²	**Fail**

Excess emissions = 4.81 kg/m² (19.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.3 kWh/m²	**Fail**

Excess energy = 4.54 kg/m² (15.3 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.47m²
Windows facing: South	4.33m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 08 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.5 m² (fraction 0.516)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W04c	16mm or more	0.8	0.38	1.3	4.33	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	South	1.36	2.55
W04c		Ext	South	1.698	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	25.85	7.8	18.05	0.18	0	False	0
Internal Elements							
Int	63.25						9
Party Elements							
P.Wall	52.8						0
P. Ceiling	43.6						0
Floor	43.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3215

Length	Psi-value		
3.058	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.058	0.03	E3	Sill
10.2	0.045	E4	Jamb
12.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.18	E16	Corner (normal)
19.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 1
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 08 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	106.83	**(P1)**
Transmission heat loss coefficient:	21.2	
Summer heat loss coefficient:	128.03	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W02d)	0	1
South (W04c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W02d)	0.85	0.9	1	0.76	**(P8)**
South (W04c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W02d)	0.9 x	3.47	112.21	0.38	0.8	0.76	81.49	
South (W04c)	0.9 x	4.33	112.21	0.38	0.8	0.76	101.69	
						Total	183.18	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.19	286.85	292.64	
Total summer gains	488.07	470.03	473.38	**(P5)**
Summer gain/loss ratio	3.81	3.67	3.7	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.72	23.48	23.41	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 09 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	19.97 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.75 kg/m²	**Fail**

Excess emissions = 3.78 kg/m² (18.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.6 kWh/m²	**Fail**

Excess energy = 3.50 kg/m² (13.4 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.19m²
Windows facing: South	7.08m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 09 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.31
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	27.5 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.19	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.035	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	30.525	12.27	18.25	0.18	0	False	0
Internal Elements							
Int	122.65						9
Party Elements							
P.Wall	67.1						0
P. Ceiling	67.7						0
Floor	67.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2481

Length	Psi-value		
4.815	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
13.86	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.815	0.03	E3	Sill
15.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
15.9	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 09 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.31
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	165.88	**(P1)**
Transmission heat loss coefficient:	26	
Summer heat loss coefficient:	191.9	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	288.16	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	401.7	385.89	393.31	
Total summer gains	700.4	674.05	677.62	**(P5)**
Summer gain/loss ratio	3.65	3.51	3.53	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.54	23.3	23.22	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 67.7m²

Site Reference : Station Hill - Block E

Plot Reference: E06 10 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.29 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.96 kg/m²	**Fail**

Excess emissions = 3.67 kg/m² (18.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.6 kWh/m²	**Fail**

Excess energy = 3.04 kg/m² (11.4 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 10 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.39
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	28.4 m² (fraction 0.419)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	29.975	9.97	20.01	0.18	0	False	0
Internal Elements							
Int	115.775						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	67.7						0
Floor	67.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3128

Length	Psi-value		
4.785	0.067	E2	Other lintels (including other steel lintels)

SAP Input

12	0.045	E4	Jamb
12.23	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.785	0.03	E3	Sill
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 10 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.39
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	147.45	**(P1)**
Transmission heat loss coefficient:	25.3	
Summer heat loss coefficient:	172.75	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	402.13	386.36	393.92	
Total summer gains	644.84	620.5	624.94	**(P5)**
Summer gain/loss ratio	3.73	3.59	3.62	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.63	23.38	23.31	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 47.6m²

Site Reference : Station Hill - Block E

Plot Reference: E06 11 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.06 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.25 kg/m²	**Fail**

Excess emissions = 5.19 kg/m² (21.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.8 kWh/m²	**Fail**

Excess energy = 5.20 kg/m² (17.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	6.75m²
Windows facing: South	4.7m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 11 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.32
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	47.6 m²	2.975 m

Living area:	26.5 m² (fraction 0.557)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06d	16mm or more	0.8	0.38	1.3	6.75	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	South	2.648	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	19.8	11.45	8.35	0.18	0	False	0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	62.425						0
P. Ceiling	47.6						0
Floor	47.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4065

Length	**Psi-value**		
4.755	0.067	E2	Other lintels (including other steel lintels)

SAP Input

4.755	0.03	E3	Sill
12	0.045	E4	Jamb
7.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
22.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 11 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.32
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	135.52	**(P1)**
Transmission heat loss coefficient:	23.7	
Summer heat loss coefficient:	159.22	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W06d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W06d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W06d)	0.9 x	6.75	112.21	0.38	0.8	0.76	158.52	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	268.91	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	315.57	303.48	309.53	
Total summer gains	594.32	572.38	574.84	**(P5)**
Summer gain/loss ratio	3.73	3.59	3.61	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.65	23.41	23.32	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 52.3m²

Site Reference : Station Hill - Block E

Plot Reference: E06 12 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.96 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.28 kg/m²	**Fail**

Excess emissions = 3.32 kg/m² (13.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 12 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.22
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52.3 m²	2.75 m

Living area:	22.9 m² (fraction 0.438)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	East	2.628	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.9	10.24	10.66	0.18	0	False	0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	57.75						0
P. Ceiling	52.3						0
Floor	52.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3616

Length	Psi-value		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

4.018	0.03	E3	Sill
10.2	0.045	E4	Jamb
7.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
21	0	P3	Intermediate floor between dwellings (in blocks of flats)
21	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 12 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.22
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	137.64	**(P1)**
Transmission heat loss coefficient:	22.1	
Summer heat loss coefficient:	159.77	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	251.85	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	336.28	323.29	329.67	
Total summer gains	603.62	575.14	551.23	**(P5)**
Summer gain/loss ratio	3.78	3.6	3.45	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.7	23.42	23.17	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 51.1m²

Site Reference : Station Hill - Block E

Plot Reference: E06 13 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.68 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.45 kg/m²	**Fail**

Excess emissions = 3.77 kg/m² (15.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.8 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 13 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.01
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	51.1 m²	2.75 m

Living area:	29.4 m² (fraction 0.575)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	East	2.628	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.625	10.24	10.39	0.18	0	False	0
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	61.875						0
P. Ceiling	51.1						0
Floorf	51.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4368

Length	Psi-value		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

4.018	0.03	E3	Sill
10.2	0.045	E4	Jamb
15	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
22.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 13 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.01
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	134.48	**(P1)**
Transmission heat loss coefficient:	23.5	
Summer heat loss coefficient:	158.01	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	251.85	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	330.99	318.23	324.52	
Total summer gains	598.33	570.08	546.09	**(P5)**
Summer gain/loss ratio	3.79	3.61	3.46	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.7	23.42	23.17	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:09

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.6m²

Site Reference : Station Hill - Block E

Plot Reference: E06 14 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.91 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.28 kg/m²	**Fail**

Excess emissions = 3.37 kg/m² (13 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.7 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	4.33m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 14 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.94
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.7 m² (fraction 0.521)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.33	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	East	1.698	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	7.87	9.73	0.18	0	False	0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.125						0
P. Ceiling	43.6						0
Floor	43.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4279

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.088	0.03	E3	Sill
10.2	0.045	E4	Jamb
6.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
21.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 14 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.94
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	114.74	**(P1)**
Transmission heat loss coefficient:	19	
Summer heat loss coefficient:	133.75	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W04d)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W04d)	0.9 x	4.33	117.51	0.38	0.8	0.76	106.5	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	193.56	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.18	286.84	292.63	
Total summer gains	503.65	480.4	462.92	**(P5)**
Summer gain/loss ratio	3.77	3.59	3.46	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.67	23.4	23.17	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 68.5m²

Site Reference : Station Hill - Block E

Plot Reference: E06 15 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.17 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.32 kg/m²	**Fail**

Excess emissions = 3.15 kg/m² (15.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	25.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.3 kWh/m²	**Fail**

Excess energy = 2.41 kg/m² (09.3 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.54m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 15 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.97
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	68.5 m²	2.75 m

Living area:	27.8 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	1.39	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	8.24	19.26	0.18	0	False	0
Internal Elements							
Int	121.55						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	68.5						0
Floor	68.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3363

Length	Psi-value		
4.11	0.067	E2	Other lintels (including other steel lintels)

SAP Input

4.11	0.03	E3	Sill
12	0.045	E4	Jamb
11.78	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 15 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.97
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	149.19	**(P1)**
Transmission heat loss coefficient:	22.9	
Summer heat loss coefficient:	172.09	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	193.52	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	405.96	390.1	397.93	
Total summer gains	606.56	583.62	588.86	**(P5)**
Summer gain/loss ratio	3.52	3.39	3.42	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.41	23.18	23.11	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 16 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.83 kg/m²	**Fail**

Excess emissions = 4.53 kg/m² (18.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.5 kWh/m²	**Fail**

Excess energy = 5.19 kg/m² (19.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.41m²
Windows facing: South	3.54m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 16 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.03
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.3 m²	2.75 m

Living area:	23 m² (fraction 0.531)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.728	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	7.95	9.65	0.18	0	False	0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.675						0
P. Ceiling	43.3						0
Floor	43.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.429

Length	**Psi-value**		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.118	0.03	E3	Sill
10.2	0.045	E4	Jamb
6.58	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
21.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 16 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.03
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	110.03	**(P1)**
Transmission heat loss coefficient:	19.1	
Summer heat loss coefficient:	129.14	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W04d)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (W02c)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	186.71	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	296.87	285.59	291.35	
Total summer gains	490.41	472.3	475.56	**(P5)**
Summer gain/loss ratio	3.8	3.66	3.68	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.71	23.47	23.39	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 42m²

Site Reference : Station Hill - Block E

Plot Reference: E06 17 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.66 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.39 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.4 kWh/m²	
		Fail

Excess energy = 1.45 kg/m² (05.4 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.33m²
Windows facing: South	2.35m²
Ventilation rate:	2.20
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 17 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 224.32
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	42 m²	2.75 m

Living area:	21.3 m² (fraction 0.507)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.33	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.698	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.325	6.68	10.65	0.18	0	False	14
Internal Elements							
Int	61.325						9
Party Elements							
P.Wall	58.025						20
P. Ceiling	42						100
Floor	42						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4231

Length	Psi-value		
3.058	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
6.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
3.058	0.03	E3	Sill
21.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 17 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 224.32
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	83.85	**(P1)**
Transmission heat loss coefficient:	17.5	
Summer heat loss coefficient:	101.35	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W04d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W04d)	0.9 x	4.33	112.21	0.38	0.8	0.76	101.69	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
						Total	156.88	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	291.46	280.43	286.16	
Total summer gains	454.08	437.31	440.95	**(P5)**
Summer gain/loss ratio	4.48	4.31	4.35	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.43	0.43	0.43	
Threshold temperature	20.91	22.64	22.58	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 69.5m²

Site Reference : Station Hill - Block E

Plot Reference: E06 18 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.43 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.64 kg/m²	**Fail**

Excess emissions = 3.21 kg/m² (15.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.1 kWh/m²	**Fail**

Excess energy = 1.82 kg/m² (06.7 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.12m²
Windows facing: South	4.7m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 18 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.81
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	69.5 m²	2.75 m

Living area:	29.2 m² (fraction 0.42)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05a	16mm or more	0.8	0.38	1.3	4.12	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05a		Ext	South	2.035	2.025
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.375	8.82	25.56	0.18	0	False	0
Internal Elements							
Int	122.1						9
Party Elements							
P.Wall	64.075						0
P. Ceiling	69.5						0
Floor	69.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2688

Length	Psi-value		
4.755	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.755	0.021	E3	Sill
10.95	0.016	E4	Jamb
15.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
23.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 18 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.81
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	145.06	**(P1)**
Transmission heat loss coefficient:	24.7	
Summer heat loss coefficient:	169.8	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05a)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05a)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05a)	0.9 x	4.12	112.21	0.38	0.8	0.76	96.76	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	207.14	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	409.71	393.67	401.5	
Total summer gains	624.43	600.81	605.87	**(P5)**
Summer gain/loss ratio	3.68	3.54	3.57	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.57	23.33	23.26	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 82.7m²

Site Reference : Station Hill - Block E

Plot Reference: E06 19 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.28 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.77 kg/m²	**Fail**

Excess emissions = 3.49 kg/m² (16.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	6.61m²
Windows facing: South	2.35m²
Windows facing: East	3.53m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 19 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.27
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	82.7 m²	2.75 m

Living area:	35.9 m² (fraction 0.434)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08d	16mm or more	0.8	0.38	1.3	6.61	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08d	16mm or more	0.8	0.38	1.3	3.53	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08d		Ext	South	2.591	2.55
W02a		Ext	South	1.36	1.725
W08d		Ext	East	1.385	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	56.375	19.63	36.75	0.18	0	False	0
Internal Elements							
Int	177.1						9
Party Elements							
P.Wall	50.875						0

SAP Input

P. Ceiling	82.7	0
Floor	82.7	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1699

Length	Psi-value		
8.649	0.013	E2	Other lintels (including other steel lintels)
8.649	0.021	E3	Sill
22.2	0.016	E4	Jamb
23.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 19 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.27
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	210.14	**(P1)**
Transmission heat loss coefficient:	40.4	
Summer heat loss coefficient:	250.59	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08d)	0	1
South (W02a)	0	1
East (W08d)	0	1
East (W04d)	0	1
East (W03a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08d)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08d)	0.9 x	6.61	112.21	0.38	0.8	0.76	155.24	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08d)	0.9 x	3.53	117.51	0.38	0.8	0.76	86.82	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
						Total	472.85	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	455.84	437.66	445.88	
Total summer gains	952.54	910.51	884.36	**(P5)**
Summer gain/loss ratio	3.8	3.63	3.53	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	

SAP 2012 Overheating Assessment

Thermal mass temperature increment	1.87	1.87	1.87
Threshold temperature	21.67	23.4	23.19 **(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 83.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 20 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.17 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.85 kg/m²	**Fail**

Excess emissions = 3.68 kg/m² (15.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	2.4m²
Windows facing: East	7.14m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Windows facing: North	4.12m²
Ventilation rate:	3.00
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 20 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.38
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	83.5 m²	2.75 m

Living area:	38.3 m² (fraction 0.459)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08f	16mm or more	0.8	0.38	1.3	7.1	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08f		Ext	North	2.785	2.55
W01b		Ext	North	0.94	2.55
W08f		Ext	East	2.8	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725
W03d		Ext	North	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.133	27.9	22.23	0.18	0	False	0

SAP Input

Internal Elements		
Int	170.5	9
Party Elements		
P.Wall	57.2	0
P. Ceiling	83.5	0
Floor	83.5	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1775

Length	Psi-value		
11.453	0.013	E2	Other lintels (including other steel lintels)
11.453	0.021	E3	Sill
28.95	0.016	E4	Jamb
13.56	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 20 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.38
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	227.33	**(P1)**
Transmission heat loss coefficient:	47.4	
Summer heat loss coefficient:	274.71	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W08f)	0	1
North (W01b)	0	1
East (W08f)	0	1
East (W04d)	0	1
East (W03a)	0	1
North (W03d)	0	1

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Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W08f)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W08f)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W01b)	0.9 x	2.4	81.19	0.38	0.8	0.76	40.78	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	582.65	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	458.4	440.11	448.36	
Total summer gains	1081.61	1022.76	945.52	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.94	3.72	3.44	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.81	23.49	23.11	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 54.6m²

Site Reference : Station Hill - Block E

Plot Reference: E06 21 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.43 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.92 kg/m²	**Fail**

Excess emissions = 2.49 kg/m² (9.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 21 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.75 m

Living area:	31.9 m² (fraction 0.584)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	10.82	13.1	0.18	0	False	0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	65.175						0
P. Ceiling	54.6						0
Floor	54.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3308

Length	Psi-value		
4.243	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.243	0.021	E3	Sill
10.2	0.016	E4	Jamb
9	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
23.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 21 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	118.92	**(P1)**
Transmission heat loss coefficient:	23.6	
Summer heat loss coefficient:	142.56	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
						Total	183.86	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.96	339.5	
Total summer gains	545.3	516.82	488.99	**(P5)**
Summer gain/loss ratio	3.82	3.63	3.43	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.75	23.45	23.15	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:08

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 52m²

Site Reference : Station Hill - Block E

Plot Reference: E06 22 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.31 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.39 kg/m²	**Fail**

Excess emissions = 5.08 kg/m² (19.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	41.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	7.14m²
Windows facing: East	7.14m²
Ventilation rate:	3.50
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 22 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.8
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52 m²	2.75 m

Living area:	30.6 m² (fraction 0.588)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W08f		Ext	North	2.8	2.55
W08f		Ext	East	2.8	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	18.4	9.1	0.18	0	False	0
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	57.2						0
P. Ceiling	52						0
Floor	52						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2699

Length	Psi-value		
7.215	0.013	E2	Other lintels (including other steel lintels)
7.215	0.021	E3	Sill
15.3	0.016	E4	Jamb
5.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 22 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.8
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	165.16	**(P1)**
Transmission heat loss coefficient:	31.8	
Summer heat loss coefficient:	196.96	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W08f)	0	1
East (W08f)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W08f)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
						Total	366.94	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	334.96	322.03	328.38	
Total summer gains	728.37	688.97	638.44	**(P5)**
Summer gain/loss ratio	3.7	3.5	3.24	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.62	23.32	22.96	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 71m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 23 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.42 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.02 kg/m²	**Fail**

Excess emissions = 1.6 kg/m² (6.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 23 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.86
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	71 m²	2.75 m

Living area:	28.9 m² (fraction 0.407)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.6	14.36	14.24	0.18	0	False	0
Internal Elements							
Int	125.125						9
Party Elements							
P.Wall	69.025						0
P. Ceiling	71						0
Floor	71						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.296

Length	Psi-value		
5.633	0.013	E2	Other lintels (including other steel lintels)
5.633	0.021	E3	Sill
15.3	0.016	E4	Jamb
9.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
25.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 23 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.86
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	154.64	**(P1)**
Transmission heat loss coefficient:	28.8	
Summer heat loss coefficient:	183.41	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	244.01	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	414.53	398.16	405.76	
Total summer gains	678.52	642.17	604.16	**(P5)**
Summer gain/loss ratio	3.7	3.5	3.29	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.59	23.29	22.98	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 53.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 24 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.16 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.34 kg/m²	**Fail**

Excess emissions = 2.18 kg/m² (8.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	5.27m²
Windows facing: East	5.27m²
Windows facing: East	5.27m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 24 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 218.8
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	53.6 m²	2.75 m

Living area:	28.8 m² (fraction 0.537)
Front of dwelling faces:	East

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W05e	16mm or more	0.8	0.38	1.3	5.27	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05c		Ext	North	2.065	2.55
W05c		Ext	East	2.065	2.55
W05e		Ext	East	2.065	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.65	15.81	18.84	0.18	0	False	14
Internal Elements							
Int	92.4						9
Party Elements							
P.Wall	49.225						20
P. Ceiling	53.6						100
Floor	53.6						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2519

Length	Psi-value		
6.195	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
14.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
2.75	0.12	E25	Staggered party wall between dwellings
6.195	0.03	E3	Sill
17.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.9	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 24 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 218.8
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	121.6	**(P1)**
Transmission heat loss coefficient:	31.7	
Summer heat loss coefficient:	153.26	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W05c)	0	1
East (W05c)	0	1
East (W05e)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W05c)	0.85	0.9	1	0.76	**(P8)**
East (W05c)	0.85	0.9	1	0.76	**(P8)**
East (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W05c)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
East (W05c)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
East (W05e)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
						Total	348.78	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	342	328.76	335.23	
Total summer gains	714.06	677.54	636.1	**(P5)**
Summer gain/loss ratio	4.66	4.42	4.15	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.47	0.47	0.47	
Threshold temperature	21.13	22.79	22.42	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 54.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 25 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.59 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.27 kg/m²	**Fail**

Excess emissions = 2.68 kg/m² (10.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	5.27m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 25 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.64
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.75 m

Living area:	31.1 m² (fraction 0.57)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W05c	16mm or more	0.8	0.38	1.3	5.27	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W05c		Ext	North	2.065	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.375	11.97	11.41	0.18	0	False	0
Internal Elements							
Int	82.775						9
Party Elements							
P.Wall	62.975						0
P. Ceiling	55.8						0
Floor	55.8						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.349

Length	**Psi-value**		
4.693	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
7.6	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.693	0.03	E3	Sill
23	0	P3	Intermediate floor between dwellings (in blocks of flats)
23	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 25 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.64
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	123.87	**(P1)**
Transmission heat loss coefficient:	25	
Summer heat loss coefficient:	148.88	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W05c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W05c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W05c)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
						Total	203.4	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.97	339.5	
Total summer gains	566.44	536.36	504.88	**(P5)**
Summer gain/loss ratio	3.8	3.6	3.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.71	23.41	23.1	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 72.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 26 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.35 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.88 kg/m²	**Fail**

Excess emissions = 1.53 kg/m² (6.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.5 kWh/m²	
		OK

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2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	8.24m²
Windows facing: North	3.54m²
Ventilation rate:	2.00
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 26 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 17.46
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	2
W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W05e		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.05	11.78	38.27	0.18	0	False	0
Internal Elements							
Int	140.25						9
Party Elements							
P.Wall	49.775						0
P. Ceiling	72.3						0
Floor	72.3						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1939

Length	**Psi-value**		
4.62	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.62	0.021	E3	Sill
15.3	0.016	E4	Jamb
27.16	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 26 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 17.46
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	131.22	**(P1)**
Transmission heat loss coefficient:	31.1	
Summer heat loss coefficient:	162.37	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W05e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	8.24	81.19	0.38	0.8	0.76	140.02	
North (W05e)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	200.17	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.72	403.15	410.91	
Total summer gains	636.28	603.32	573.67	**(P5)**
Summer gain/loss ratio	3.92	3.72	3.53	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.8	23.49	23.21	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 72.3m²

Site Reference : Station Hill - Block E

Plot Reference: E06 27 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.18 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.50 kg/m²	**Fail**

Excess emissions = 2.32 kg/m² (11 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.9 kWh/m²	**Fail**

Excess energy = 0.31 kg/m² (01.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	8.24m²
Windows facing: South	3.54m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 27 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 55.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	2
W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	South	1.615	2.55
W05e		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.05	11.78	38.27	0.18	0	False	0
Internal Elements							
Int	123.2						9
Party Elements							
P.Wall	49.775						0
P. Ceiling	72.3						0
Floor	72.3						40

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1939

Length	**Psi-value**		
4.62	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
27.16	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.62	0.021	E3	Sill
2.75	0.18	E16	Corner (normal)
18.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 27 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 55.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	157.47	**(P1)**
Transmission heat loss coefficient:	31.1	
Summer heat loss coefficient:	188.62	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W03d)	0	1
South (W05e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W03d)	0.85	0.9	1	0.76	**(P8)**
South (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W03d)	0.9 x	8.24	112.21	0.38	0.8	0.76	193.52	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	276.66	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.72	403.15	410.91	
Total summer gains	706.5	679.81	683.87	**(P5)**
Summer gain/loss ratio	3.75	3.6	3.63	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.61	1.61	1.61	
Threshold temperature	21.36	23.12	23.04	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 85m²

Site Reference : Station Hill - Block E

Plot Reference: E06 28 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	19.36 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	20.92 kg/m²	**Fail**

Excess emissions = 1.56 kg/m² (8.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	28.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	26.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	3.47m²
Windows facing: West	3.54m²
Windows facing: South	2.4m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 28 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 14.76
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	85 m²	2.75 m

Living area:	38.4 m² (fraction 0.452)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	West	1.36	2.55
W02c		Ext	West	1.39	2.55
W01b		Ext	South	0.94	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	9.41	14.51	0.18	0	False	0
Internal Elements							
Int	139.425						9
Party Elements							
P.Wall	92.4						0
P. Ceiling	85						0
Floor	85						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3525

Length	Psi-value		
3.69	0.013	E2	Other lintels (including other steel lintels)
15.3	0.016	E4	Jamb
10.02	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.69	0.021	E3	Sill
2.75	0	E17	Corner (inverted internal area greater than external area)
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 28 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 14.76
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	185.13	**(P1)**
Transmission heat loss coefficient:	22.7	
Summer heat loss coefficient:	207.8	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W02d)	0	1
West (W02c)	0	1
South (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W02d)	0.85	0.9	1	0.76	**(P8)**
West (W02c)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W02d)	0.9 x	3.47	117.51	0.38	0.8	0.76	85.34	
West (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	228.77	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	464.82	446.46	455.34	
Total summer gains	706.27	675.24	662.63	**(P5)**
Summer gain/loss ratio	3.4	3.25	3.19	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.3	23.05	22.89	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 38.8m²

Site Reference : Station Hill - Block E

Plot Reference: E06 29 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.86 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.29 kg/m²	**Fail**

Excess emissions = 0.43 kg/m² (1.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.3 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	3.54m²
Windows facing: West	2.4m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 29 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 111.12
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.8 m²	2.75 m

Living area:	31.4 m² (fraction 0.809)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	West	1.39	2.55
W01b		Ext	West	0.94	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	5.94	11.66	0.18	0	False	0
Internal Elements							
Int	47.96						9
Party Elements							
P.Wall	56.375						0
P. Ceiling	38.8						100
Floor	38.8						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.4207

Length	Psi-value		
2.33	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
8.14	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.33	0.03	E3	Sill
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 29 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 111.12
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	84.51	**(P1)**
Transmission heat loss coefficient:	16.8	
Summer heat loss coefficient:	101.35	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W05e)	0	1
West (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W05e)	0.85	0.9	1	0.76	**(P8)**
West (W01b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W05e)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
West (W01b)	0.9 x	2.4	117.51	0.38	0.8	0.76	59.03	
						Total	146.09	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	278.04	267.6	273.13	
Total summer gains	433.12	413.69	401.66	**(P5)**
Summer gain/loss ratio	4.27	4.08	3.96	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.22	1.22	1.22	
Threshold temperature	21.5	23.2	22.99	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:07

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 50.12m²

Site Reference : Station Hill - Block E

Plot Reference: E06 30 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.03 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.58 kg/m²	**Fail**

Excess emissions = 3.55 kg/m² (13.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.62m²
Windows facing: East	2.35m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 30 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.05
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	50.12 m²	2.75 m

Living area:	30 m² (fraction 0.599)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.62	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.598	2.55
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	21.175	8.97	12.2	0.18	0	False	0
Roof	50.12	0	50.12	0.13	0		0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	60.775						0
Floor	50.12						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1013			
	Length	**Psi-value**		
	3.958	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
3.484	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.958	0.03	E3	Sill
22.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3

Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

Conservatory: No conservatory

Low energy lights: 100%

Terrain type: Dense urban

EPC language: English

Wind turbine: No

Photovoltaics: None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 30 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.05
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	118.26	**(P1)**
Transmission heat loss coefficient:	27	
Summer heat loss coefficient:	145.28	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.62	117.51	0.38	0.8	0.76	162.82	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	220.61	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	326.72	314.15	320.4	
Total summer gains	560.91	534.77	514.48	**(P5)**
Summer gain/loss ratio	3.86	3.68	3.54	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.78	23.5	23.26	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 51.2m²

Site Reference : Station Hill - Block E

Plot Reference: E06 31 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.48 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.07 kg/m²	**Fail**

Excess emissions = 3.59 kg/m² (13.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.3 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.62m²
Windows facing: East	2.35m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 31 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.65
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	51.2 m²	2.75 m

Living area:	29.4 m² (fraction 0.574)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.62	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.598	2.55
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.625	8.97	11.66	0.18	0	False	0
Roof	51.2	0	51.2	0.13	0		0
Internal Elements							
Int	66.275						9
Party Elements							
P.Wall	61.875						0
Floor	51.2						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1292			
	Length	**Psi-value**		
	3.958	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
3.5	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.5	0.56	E15	Flat roof with parapet
3.958	0.03	E3	Sill
22.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 31 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.65
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	125.45	**(P1)**
Transmission heat loss coefficient:	29.1	
Summer heat loss coefficient:	154.57	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.62	117.51	0.38	0.8	0.76	162.82	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	220.61	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	331.51	318.74	325.06	
Total summer gains	565.7	539.35	519.15	**(P5)**
Summer gain/loss ratio	3.66	3.49	3.36	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.58	23.31	23.08	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 32 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.64 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.53 kg/m²	**Fail**

Excess emissions = 3.89 kg/m² (14.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.3 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.62m²
Windows facing: East	3.54m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 32 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.48
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	51.1 m²	2.75 m

Living area:	30.4 m² (fraction 0.595)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.62	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.598	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.35	10.16	10.19	0.18	0	False	0
Roof	51.1	0	51.1	0.13	0		0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	61.6						0
Floor	51.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1296

Length	Psi-value		
3.988	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
3.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.4	0.56	E15	Flat roof with parapet
3.988	0.03	E3	Sill
22.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 32 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.48
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	125.21	**(P1)**
Transmission heat loss coefficient:	30.3	
Summer heat loss coefficient:	155.5	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.62	117.51	0.38	0.8	0.76	162.82	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	249.88	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	330.99	318.23	324.52	
Total summer gains	596.25	568.11	544.36	**(P5)**
Summer gain/loss ratio	3.83	3.65	3.5	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.75	23.47	23.22	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 42.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 33 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	32.69 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	36.27 kg/m²	**Fail**

Excess emissions = 3.58 kg/m² (11 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	45.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 33 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 14.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	42.1 m²	2.75 m

Living area:	21.3 m² (fraction 0.506)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.75	10.24	14.51	0.18	0	False	0
Roof	40.5	0	40.5	0.13	0		0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	56.375						0
Floor	40.5						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1522

Length	**Psi-value**		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
5	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E25	Staggered party wall between dwellings c
5	0.56	E15	Flat roof with parapet
4.018	0.03	E3	Sill
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 33 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 14.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	99.33	**(P1)**
Transmission heat loss coefficient:	30.5	
Summer heat loss coefficient:	129.79	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	174	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	291.7	280.63	286.31	
Total summer gains	479.94	454.64	427.78	**(P5)**
Summer gain/loss ratio	3.7	3.5	3.3	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.6	23.3	23	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.1m²

Site Reference : Station Hill - Block E

Plot Reference: E06 34 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	31.37 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.52 kg/m²	**Fail**

Excess emissions = 3.15 kg/m² (10 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	51.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.7 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.41m²
Windows facing: North	3.54m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 34 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.44
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.1 m²	2.75 m

Living area:	22.3 m² (fraction 0.517)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d*	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d*	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d*		Ext	North	1.728	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.9	7.95	12.95	0.18	0	False	0
Roof	43.1	0	43.1	0.13	0		0
Internal Elements							
Int	64.35						9
Party Elements							
P.Wall	56.1						0
Floor	43.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1556

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
4.49	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E25	Staggered party wall between dwellings c
4.49	0.56	E15	Flat roof with parapet
3.118	0.03	E3	Sill
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
20.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 34 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.44
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	93.87	**(P1)**
Transmission heat loss coefficient:	27.7	
Summer heat loss coefficient:	121.59	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W04d*)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W04d*)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W04d*)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	135.09	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	296.01	284.76	290.51	
Total summer gains	442.16	419.85	400.35	**(P5)**
Summer gain/loss ratio	3.64	3.45	3.29	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.54	23.26	23	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.4m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 35 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	31.56 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	35.74 kg/m²	**Fail**

Excess emissions = 4.18 kg/m² (13.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	53.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	47.8 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.63m²
Windows facing: North	3.54m²
Windows facing: East	4.63m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 35 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 53.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.4 m²	2.75 m

Living area:	22.6 m² (fraction 0.521)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W07b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W07b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W07b	16mm or more	0.8	0.38	1.3	4.63	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W07b	16mm or more	0.8	0.38	1.3	4.63	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W07b		Ext	North	1.815	2.55
W02c		Ext	North	1.39	2.55
W07b		Ext	East	1.815	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.2	12.8	11.4	0.18	0	False	0
Roof	43.4	0	43.4	0.13	0		0
Internal Elements							
Int	64.35						9
Party Elements							
P.Wall	51.57						0
Floor	43.4						40

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1413

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
3.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
2.75	0.18	E16	Corner (normal)
3.8	0.56	E15	Flat roof with parapet
5.02	0.03	E3	Sill
19	0	P3	Intermediate floor between dwellings (in blocks of flats)
19	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory

DRAFT

SAP Input

Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 35 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 53.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	110.28	**(P1)**
Transmission heat loss coefficient:	33.1	
Summer heat loss coefficient:	143.34	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W07b)	0	1
North (W02c)	0	1
East (W07b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W07b)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (W07b)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W07b)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (W07b)	0.9 x	4.63	117.51	0.38	0.8	0.76	113.87	
						Total	252.7	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	297.27	285.97	291.73	
Total summer gains	568.35	538.67	504.79	**(P5)**
Summer gain/loss ratio	3.97	3.76	3.52	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.63	1.63	1.63	
Threshold temperature	21.59	23.28	22.95	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 72.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 36 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.27 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.22 kg/m²	**Fail**

Excess emissions = 1.95 kg/m² (7.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	7.08m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 36 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.23
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	28.4 m² (fraction 0.393)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	26.95	13.78	13.17	0.18	0	False	0
Roof	72.3	0	72.3	0.13	0		0
Internal Elements							
Int	130.35						9
Party Elements							
P.Wall	69.85						0
Floor	72.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1113

Length	Psi-value		
5.408	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
4.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.4	0.56	E15	Flat roof with parapet
5.408	0.03	E3	Sill
25.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 36 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.23
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	150.91	**(P1)**
Transmission heat loss coefficient:	39.8	
Summer heat loss coefficient:	190.76	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	7.08	81.19	0.38	0.8	0.76	120.31	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.48	402.9	410.58	
Total summer gains	672.81	637.05	600.96	**(P5)**
Summer gain/loss ratio	3.53	3.34	3.15	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.41	23.13	22.84	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 81.4m²

Site Reference : Station Hill - Block E

Plot Reference: E06 37 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.15 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.61 kg/m²	**Fail**

Excess emissions = 2.46 kg/m² (9.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	43.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	3.54m²
Windows facing: East	3.53m²
Windows facing: East	4.04m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 37 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.21
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.4 m²	2.75 m

Living area:	36 m² (fraction 0.442)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08e	16mm or more	0.8	0.38	1.3	7.1	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W08e	16mm or more	0.8	0.38	1.3	3.53	1
W03d	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08e		Ext	North	2.785	2.55
W02c		Ext	North	1.39	2.55
W08e		Ext	East	1.385	2.55
W03d		Ext	East	1.585	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	52.525	18.21	34.32	0.18	0	False	0
Roof	81.4	0	81.4	0.13	0		0
Internal Elements							
Int	164.725						9
Party Elements							
P.Wall	50.875						0
Floor	81.4						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1087

Length	Psi-value		
7.145	0.013	E2	Other lintels (including other steel lintels)
20.4	0.016	E4	Jamb
12	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
12	0.56	E15	Flat roof with parapet
7.145	0.021	E3	Sill
18.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3

Pressure test: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 37 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.21
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	169.9	**(P1)**
Transmission heat loss coefficient:	53.8	
Summer heat loss coefficient:	223.73	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W08e)	0	1
North (W02c)	0	1
East (W08e)	0	1
East (W03d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W08e)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (W08e)	0.85	0.9	1	0.76	**(P8)**
East (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W08e)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (W08e)	0.9 x	3.53	117.51	0.38	0.8	0.76	86.82	
East (W03d)	0.9 x	4.04	117.51	0.38	0.8	0.76	99.36	
						Total	366.98	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	451.61	433.61	441.77	
Total summer gains	844.84	800.59	752.57	**(P5)**
Summer gain/loss ratio	3.78	3.58	3.36	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.65	23.35	23.04	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:06

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 38 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.74 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.31 kg/m²	**Fail**

Excess emissions = 4.57 kg/m² (18.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	48.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	43.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.14m²
Windows facing: South	4.33m²
Windows facing: East	7.14m²
Windows facing: East	4.12m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 38 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.9 m²	2.75 m

Living area:	36.3 m² (fraction 0.443)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W04e	16mm or more	0.8	0.38	1.3	4.33	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08f		Ext	South	2.8	2.55
W04e		Ext	South	1.698	2.55
W08f		Ext	East	2.8	2.55
W03d		Ext	East	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	53.075	22.73	30.35	0.18	0	False	0
Roof	81.9	0	81.9	0.13	0		0
Internal Elements							
Int	166.925						9
Party Elements							
P.Wall	52.25						0
Floor	81.9						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1009

Length	Psi-value		
8.913	0.013	E2	Other lintels (including other steel lintels)
20.4	0.016	E4	Jamb
10.4	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
10.4	0.56	E15	Flat roof with parapet
8.913	0.021	E3	Sill
19	0	P3	Intermediate floor between dwellings (in blocks of flats)
19	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 38 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	208.11	**(P1)**
Transmission heat loss coefficient:	57.8	
Summer heat loss coefficient:	265.93	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W08f)	0	1
South (W04e)	0	1
East (W08f)	0	1
East (W03d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W08f)	0.85	0.9	1	0.76	**(P8)**
South (W04e)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W08f)	0.9 x	7.14	112.21	0.38	0.8	0.76	167.68	
South (W04e)	0.9 x	4.33	112.21	0.38	0.8	0.76	101.69	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
East (W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
						Total	546.31	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	453.24	435.18	443.36	
Total summer gains	1026.45	981.49	952.77	**(P5)**
Summer gain/loss ratio	3.86	3.69	3.58	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.73	23.46	23.25	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 49.5m²

Site Reference : Station Hill - Block E

Plot Reference: E06 39 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.94 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.36 kg/m²	**Fail**

Excess emissions = 4.42 kg/m² (17 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	37.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.04m²
Windows facing: South	4.04m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 39 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.3
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	49.5 m²	2.75 m

Living area:	28.7 m² (fraction 0.58)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03e	16mm or more	0.8	0.38	1.3	4.04	1
W03e	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03e		Ext	South	1.585	2.55
W03e		Ext	South	1.585	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	18.975	8.08	10.9	0.18	0	False	0
Roof	49.5	0	49.5	0.13	0		0
Internal Elements							
Int	67.65						9
Party Elements							
P.Wall	60.775						0
Floor	49.5						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1292

Length	Psi-value		
3.17	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
3.73	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.73	0.56	E15	Flat roof with parapet
3.17	0.021	E3	Sill
22.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 39 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.3
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	121.29	**(P1)**
Transmission heat loss coefficient:	27.2	
Summer heat loss coefficient:	148.51	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W03e)	0	1
South (W03e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W03e)	0.85	0.9	1	0.76	**(P8)**
South (W03e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
						Total	189.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	324.11	311.67	317.91	
Total summer gains	520.81	501.43	505.13	**(P5)**
Summer gain/loss ratio	3.51	3.38	3.4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.42	23.19	23.12	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 40m²

Site Reference : Station Hill - Block E **Plot Reference:** E06 40 - Level 6

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	31.08 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	36.58 kg/m²	**Fail**

Excess emissions = 5.5 kg/m² (17.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	46.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	45.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.04m²
Windows facing: South	4.04m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 40 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.71
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	40 m²	2.75 m

Living area:	29.2 m² (fraction 0.73)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03e	16mm or more	0.8	0.38	1.3	4.04	1
W03e	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03e		Ext	South	1.585	2.55
W03e		Ext	South	1.585	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	8.08	19.42	0.18	0	False	0
Roof	40	0	40	0.13	0		0
Internal Elements							
Int	56.485						9
Party Elements							
P.Wall	46.475						0
Floor	40						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1599			
	Length	**Psi-value**		
	3.17	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
6.83	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
6.83	0.56	E15	Flat roof with parapet
3.17	0.021	E3	Sill
19.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3

Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

Conservatory: No conservatory

Low energy lights: 100%

Terrain type: Dense urban

EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 40 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.71
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	98.01	**(P1)**
Transmission heat loss coefficient:	29.5	
Summer heat loss coefficient:	127.48	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W03e)	0	1
South (W03e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W03e)	0.85	0.9	1	0.76	**(P8)**
South (W03e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
South (W03e)	0.9 x	4.04	112.21	0.38	0.8	0.76	94.88	
						Total	189.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	282.8	272.13	277.66	
Total summer gains	479.51	461.89	464.89	**(P5)**
Summer gain/loss ratio	3.76	3.62	3.65	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.67	23.43	23.36	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 69m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 41 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.27 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.58 kg/m²	**Fail**

Excess emissions = 2.31 kg/m² (9.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.54m²
Windows facing: South	7.08m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 41 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 86.68
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	69 m²	2.75 m

Living area:	28.7 m² (fraction 0.58)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	1.39	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.775	10.62	17.15	0.18	0	False	0
Roof	69	0	69	0.13	0		0
Internal Elements							
Int	121.275						9
Party Elements							
P.Wall	69.85						70
Floor	69						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1167

Length	Psi-value		
4.17	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
5.93	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
5.93	0.56	E15	Flat roof with parapet
4.17	0.021	E3	Sill
25.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English
Wind turbine: No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 41 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 86.68
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	144.02	**(P1)**
Transmission heat loss coefficient:	36.5	
Summer heat loss coefficient:	180.5	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	249.41	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	407.16	391.15	398.76	
Total summer gains	665.69	640.56	644.84	**(P5)**
Summer gain/loss ratio	3.69	3.55	3.57	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.39	1.39	1.39	
Threshold temperature	21.08	22.84	22.77	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 68.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 42 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.31 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.22 kg/m²	**Fail**

Excess emissions = 3.91 kg/m² (16.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.54m²
Windows facing: South	7.08m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 42 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 17.08
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	68.1 m²	2.75 m

Living area:	26.24 m² (fraction 0.385)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	1.39	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.858	10.62	17.24	0.18	0	False	0
Roof	68.1	0	68.1	0.13	0		0
Internal Elements							
Int	129.25						9
Party Elements							
P.Wall	67.65						0
Floor	68.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1184

Length	Psi-value		
1.39	0.067	E2	Other lintels (including other steel lintels)

SAP Input

5.1	0.045	E4	Jamb
5.96	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
5.96	0.56	E15	Flat roof with parapet
2.78	0.013	E2	Other lintels (including other steel lintels)
10.2	0.016	E4	Jamb
2.78	0.021	E3	Sill
1.39	0.03	E3	Sill
24.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
24.6	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 42 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 17.08
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	142.14	**(P1)**
Transmission heat loss coefficient:	36.4	
Summer heat loss coefficient:	178.58	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	249.41	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	403.57	387.71	395.25	
Total summer gains	662.11	637.13	641.33	**(P5)**
Summer gain/loss ratio	3.71	3.57	3.59	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.59	23.35	23.27	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 66m²
Site Reference : Station Hill - Block E **Plot Reference:** E06 43 - Level 6
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.76 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.22 kg/m²	**Fail**

Excess emissions = 4.46 kg/m² (17.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.54m²
Windows facing: South	7.08m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E06 43 - Level 6

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.42
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	66 m²	2.75 m

Living area:	26.8 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	1.39	2.55
W02c		Ext	South	1.39	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	45.375	10.62	34.76	0.18	0	False	0
Roof	66	0	66	0.13	0		0
Internal Elements							
Int	120.45						9
Party Elements							
P.Wall	47.575						0
Floor	66						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.135

Length	Psi-value		
4.17	0.067	E2	Other lintels (including other steel lintels)

SAP Input

4.17	0.03	E3	Sill
15.3	0.045	E4	Jamb
12.33	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
12.33	0.56	E15	Flat roof with parapet
17.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E06 43 - Level 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.42
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	137.76	**(P1)**
Transmission heat loss coefficient:	43	
Summer heat loss coefficient:	180.75	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
South (W02c)	0.9 x	7.08	112.21	0.38	0.8	0.76	166.27	
						Total	249.41	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	395.06	379.57	386.95	
Total summer gains	653.6	628.98	633.03	**(P5)**
Summer gain/loss ratio	3.62	3.48	3.5	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.5	23.26	23.19	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

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Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 01 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	30.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.81 kg/m²	**Fail**

Excess emissions = 3.51 kg/m² (11.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.62m²
Windows facing: North	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 01 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.18
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	32 m² (fraction 0.836)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.62	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.598	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.133	10.16	6.97	0.18	0	False	0
Internal Elements							
Int	47.575						9
Party Elements							
P.Wall	52.525						0
P. Ceiling	38.3						0
Floor	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3919

Length	Psi-value		
3.988	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
4.46	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.988	0.03	E3	Sill
19.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 01 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.18
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	100.8	**(P1)**
Transmission heat loss coefficient:	20.5	
Summer heat loss coefficient:	121.32	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.62	81.19	0.38	0.8	0.76	112.49	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	172.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.73	265.36	270.79	
Total summer gains	462.51	438.01	411.16	**(P5)**
Summer gain/loss ratio	3.81	3.61	3.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.73	23.43	23.11	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 41.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 02 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	30.46 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.61 kg/m²	**Fail**

Excess emissions = 3.15 kg/m² (10.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	47.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.41m²
Windows facing: North	3.54m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 02 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.35
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	41.9 m²	2.75 m

Living area:	21.3 m² (fraction 0.508)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	North	1.728	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	18.975	7.95	11.03	0.18	0	False	0
Roof	41.9	0	41.9	0.13	0		0
Internal Elements							
Int	57.475						9
Party Elements							
P.Wall	57.75						0
P. Ceiling	41.9						0
Floor	41.9						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1239

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
7.56	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.118	0.03	E3	Sill
21.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 02 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.35
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	106.47	**(P1)**
Transmission heat loss coefficient:	24.8	
Summer heat loss coefficient:	131.27	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W04d)	0	1
North (W02c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W04d)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W04d)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	135.09	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	290.85	279.83	285.49	
Total summer gains	437	414.92	395.33	**(P5)**
Summer gain/loss ratio	3.33	3.16	3.01	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.24	22.97	22.73	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:05

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 03 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	30.9 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.26 kg/m²	**Fail**

Excess emissions = 3.36 kg/m² (10.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	51.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	49.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.63m²
Windows facing: North	3.54m²
Windows facing: East	4.63m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 03 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 234.7
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.7 m²	2.75 m

Living area:	24.4 m² (fraction 0.558)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W07a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W07a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W07a	16mm or more	0.8	0.38	1.3	4.63	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
E-W07a	16mm or more	0.8	0.38	1.3	4.63	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W07a		Ext	North	1.815	2.55
W02c		Ext	North	1.39	2.55
E-W07a		Ext	East	1.815	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	26.125	12.8	13.32	0.18	0	False	14
Roof	43.7	0	43.7	0.13	0		9
Internal Elements							
Int	78.925						9
Party Elements							
P.Wall	55						20
P. Ceiling	43.7						100
Floor	43.7						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1162

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
7	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
5.02	0.03	E3	Sill
2.75	0.12	E25	Staggered party wall between dwellings
20	0	P3	Intermediate floor between dwellings (in blocks of flats)
20	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 03 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 234.7
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	95.18	**(P1)**
Transmission heat loss coefficient:	32	
Summer heat loss coefficient:	127.19	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W07a)	0	1
North (W02c)	0	1
East (E-W07a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W07a)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (E-W07a)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W07a)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (E-W07a)	0.9 x	4.63	117.51	0.38	0.8	0.76	113.87	
						Total	252.7	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.57	287.21	292.99	
Total summer gains	569.64	539.91	506.05	**(P5)**
Summer gain/loss ratio	4.48	4.25	3.98	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.36	0.36	0.36	
Threshold temperature	20.84	22.5	22.14	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 04 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.2 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.21 kg/m²	**Fail**

Excess emissions = 2.01 kg/m² (8.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	3.54m²
Windows facing: North	3.54m²
Windows facing: North	4.12m²
Ventilation rate:	2.10
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 04 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.79
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.5 m²	2.75 m

Living area:	27.4 m² (fraction 0.406)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	North	1.39	2.55
W02c		Ext	North	1.39	2.55
W03d		Ext	North	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.875	11.2	17.68	0.18	0	False	0
Internal Elements							
Int	125.95						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	67.5						0
Floor	67.5						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3284

Length	Psi-value		
4.395	0.067	E2	Other lintels (including other steel lintels)
4.395	0.03	E3	Sill
15.3	0.045	E4	Jamb
2.75	0.12	E18	Party wall between dwellings
12.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E25	Staggered party wall between dwellings
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 04 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.79
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	128.64	**(P1)**
Transmission heat loss coefficient:	26.5	
Summer heat loss coefficient:	155.14	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W05e)	0	1
North (W02c)	0	1
North (W03d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W05e)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W05e)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	190.31	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	401.04	385.28	392.73	
Total summer gains	606.94	575.59	547.48	**(P5)**
Summer gain/loss ratio	3.91	3.71	3.53	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.79	23.49	23.21	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 05 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.01 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.08 kg/m²	**Fail**

Excess emissions = 3.07 kg/m² (12.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	4.12m²
Windows facing: East	3.4m²
Windows facing: North	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 05 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.15
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m

Living area:	35.2 m² (fraction 0.433)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08c	16mm or more	0.8	0.38	1.3	7.1	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W08c	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04a	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08c		Ext	North	2.785	2.55
W03d		Ext	North	1.615	2.55
W08c		Ext	East	1.335	2.55
W01b		Ext	North	0.94	2.55
W04a		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	22.3	36.28	0.18	0	False	0

SAP Input

Internal Elements		
Int	172.975	9
Party Elements		
P.Wall	50.05	0
P. Ceiling	81.3	0
Floor	81.3	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1868

Length	Psi-value		
9.733	0.067	E2	Other lintels (including other steel lintels)
9.733	0.03	E3	Sill
27.3	0.045	E4	Jamb
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
23.2	0.14	E7	Party floor between dwellings (in blocks of flats)
18.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 05 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.15
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	191.83	**(P1)**
Transmission heat loss coefficient:	45	
Summer heat loss coefficient:	236.86	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08c)	0	1
North (W03d)	0	1
East (W08c)	0	1
North (W01b)	0	1
East (W04a)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08c)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**
East (W08c)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04a)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (W08c)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
East (W08c)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
North (W01b)	0.9 x	2.4	81.19	0.38	0.8	0.76	40.78	
East (W04a)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	444.92	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	928.28	878.22	817.44	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.92	3.71	3.45	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.79	23.47	23.12	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 81.3m²

Site Reference : Station Hill - Block E

Plot Reference: E09 06 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.51 kg/m²	**Fail**

Excess emissions = 4.21 kg/m² (19.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.3 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.1m²
Windows facing: South	2.35m²
Windows facing: East	3.4m²
Windows facing: South	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 06 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.91
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m

Living area:	35.2 m² (fraction 0.433)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08a	16mm or more	0.8	0.38	1.3	7.1	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08a	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04e	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08a		Ext	South	2.785	2.55
W02a		Ext	South	1.36	1.725
W08a		Ext	East	1.335	2.55
W01b		Ext	South	0.94	2.55
W04e		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	20.53	38.05	0.18	0	False	0

SAP Input

Internal Elements		
Int	179.85	9
Party Elements		
P.Wall	50.05	0
P. Ceiling	81.3	0
Floor	81.3	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1853

Length	Psi-value		
9.478	0.067	E2	Other lintels (including other steel lintels)
25.65	0.045	E4	Jamb
23.26	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
9.478	0.03	E3	Sill
18.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 06 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.91
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	206.58	**(P1)**
Transmission heat loss coefficient:	43.1	
Summer heat loss coefficient:	249.65	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08a)	0	1
South (W02a)	0	1
East (W08a)	0	1
South (W01b)	0	1
East (W04e)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08a)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08a)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04e)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08a)	0.9 x	7.1	112.21	0.38	0.8	0.76	166.74	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08a)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
East (W04e)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	491.78	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	966.37	925.08	903.84	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.87	3.71	3.62	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.86	1.86	1.86	
Threshold temperature	21.73	23.47	23.28	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 07 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29.21 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.34 kg/m²	**Fail**

Excess emissions = 1.13 kg/m² (3.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.6 kWh/m²	**Fail**

Excess energy = 1.36 kg/m² (03.6 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	1.57m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 07 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 226.53
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	27.9 m² (fraction 0.728)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W01a	16mm or more	0.8	0.38	1.3	1.57	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W01a		Ext	South	0.91	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.875	6.84	11.03	0.18	0	False	14
Internal Elements							
Int	56.788						9
Party Elements							
P.Wall	55.825						20
P. Ceiling	38.3						100
Floor	38.3						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.7286

Length	**Psi-value**		
2.975	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
9.5	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
9.5	0.56	E15	Flat roof with parapet
2.975	0.03	E3	Sill
21	0	P3	Intermediate floor between dwellings (in blocks of flats)
21	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 07 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 226.53
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	86.89	**(P1)**
Transmission heat loss coefficient:	23.5	
Summer heat loss coefficient:	110.36	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W01a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W01a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W01a)	0.9 x	1.57	112.21	0.38	0.8	0.76	36.87	
						Total	160.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.78	265.41	270.86	
Total summer gains	442.29	426.05	429.35	**(P5)**
Summer gain/loss ratio	4.01	3.86	3.89	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.41	0.41	0.41	
Threshold temperature	20.42	22.18	22.1	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.6m²

Site Reference : Station Hill - Block E

Plot Reference: E09 08 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.94 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.75 kg/m²	**Fail**

Excess emissions = 4.81 kg/m² (19.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.3 kWh/m²	**Fail**

Excess energy = 4.54 kg/m² (15.3 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.47m²
Windows facing: South	4.33m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 08 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.5 m² (fraction 0.516)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W04c	16mm or more	0.8	0.38	1.3	4.33	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	South	1.36	2.55
W04c		Ext	South	1.698	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	25.85	7.8	18.05	0.18	0	False	0
Internal Elements							
Int	63.25						9
Party Elements							
P.Wall	52.8						0
P. Ceiling	43.6						0
Floor	43.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3215

Length	**Psi-value**		
3.058	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.058	0.03	E3	Sill
10.2	0.045	E4	Jamb
12.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
19.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 1
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 08 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	106.83	**(P1)**
Transmission heat loss coefficient:	21.2	
Summer heat loss coefficient:	128.03	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W02d)	0	1
South (W04c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W02d)	0.85	0.9	1	0.76	**(P8)**
South (W04c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W02d)	0.9 x	3.47	112.21	0.38	0.8	0.76	81.49	
South (W04c)	0.9 x	4.33	112.21	0.38	0.8	0.76	101.69	
						Total	183.18	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.19	286.85	292.64	
Total summer gains	488.07	470.03	473.38	**(P5)**
Summer gain/loss ratio	3.81	3.67	3.7	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.72	23.48	23.41	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 09 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.21 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.32 kg/m²	**Fail**

Excess emissions = 4.11 kg/m² (20.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.7 kWh/m²	**Fail**

Excess energy = 3.79 kg/m² (14.1 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.19m²
Windows facing: South	6.94m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 09 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.31
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	27.5 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.19	1
W02c	16mm or more	0.8	0.38	1.3	3.47	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.035	2.55
W02c		Ext	South	1.36	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	30.525	12.13	18.39	0.18	0	False	0
Internal Elements							
Int	122.65						9
Party Elements							
P.Wall	67.1						0
P. Ceiling	67.7						0
Floor	67.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3089

Length	Psi-value		
4.755	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
12.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.755	0.03	E3	Sill
24.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
24.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English
Wind turbine: No
Photovoltaics: None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 09 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.31
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	159.74	**(P1)**
Transmission heat loss coefficient:	27.7	
Summer heat loss coefficient:	187.47	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
South (W02c)	0.9 x	6.94	112.21	0.38	0.8	0.76	162.99	
						Total	284.88	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	401.71	385.9	393.33	
Total summer gains	697.01	670.78	674.4	**(P5)**
Summer gain/loss ratio	3.72	3.58	3.6	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.6	23.36	23.28	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.7m²

Site Reference : Station Hill - Block E **Plot Reference:** E09 10 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.47 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.39 kg/m²	**Fail**

Excess emissions = 3.92 kg/m² (19.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.4 kWh/m²	**Fail**

Excess energy = 3.21 kg/m² (11.8 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 10 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.39
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	28.4 m² (fraction 0.419)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	29.975	9.97	20.01	0.18	0	False	0
Internal Elements							
Int	115.775						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	67.7						0
Floor	67.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3575

Length	Psi-value		
4.785	0.067	E2	Other lintels (including other steel lintels)

SAP Input

12	0.045	E4	Jamb
21.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.785	0.03	E3	Sill
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 10 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.39
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	147.45	**(P1)**
Transmission heat loss coefficient:	26.6	
Summer heat loss coefficient:	174.09	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	402.13	386.36	393.92	
Total summer gains	644.84	620.5	624.94	**(P5)**
Summer gain/loss ratio	3.7	3.56	3.59	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.6	23.36	23.28	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 66.7m²

Site Reference : Station Hill - Block E

Plot Reference: E09 11 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	22.18 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.85 kg/m²	**Fail**

Excess emissions = 3.67 kg/m² (16.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	32.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.7 kWh/m²	**Fail**

Excess energy = 1.02 kg/m² (03.1 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.19m²
Windows facing: South	4.7m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 11 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.81
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	66.7 m²	2.975 m

Living area:	25.6 m² (fraction 0.384)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.19	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.035	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	49.5	9.89	39.61	0.18	0	False	0
Internal Elements							
Int	124.548						9
Party Elements							
P.Wall	46.75						0
P. Ceiling	66.7						0
Floor	66.7						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.2007

Length	Psi-value		
4.755	0.03	E3	Sill

SAP Input

4.755	0.067	E2	Other lintels (including other steel lintels)
12	0.045	E4	Jamb
26.4	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
17	0	P3	Intermediate floor between dwellings (in blocks of flats)
17	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 11 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.81
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	150.61	**(P1)**
Transmission heat loss coefficient:	29.3	
Summer heat loss coefficient:	179.89	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	232.27	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	398.1	382.5	389.99	
Total summer gains	638.87	614.77	619.16	**(P5)**
Summer gain/loss ratio	3.55	3.42	3.44	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.43	23.2	23.12	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:04

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 52.3m²

Site Reference : Station Hill - Block E

Plot Reference: E09 12 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.96 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.28 kg/m²	**Fail**

Excess emissions = 3.32 kg/m² (13.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 12 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.22
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52.3 m²	2.75 m

Living area:	22.9 m² (fraction 0.438)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	East	2.628	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.9	10.24	10.66	0.18	0	False	0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	57.75						0
P. Ceiling	52.3						0
Floor	52.3						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.3616

Length	Psi-value		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
7.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.018	0.03	E3	Sill
21	0	P3	Intermediate floor between dwellings (in blocks of flats)
21	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 12 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.22
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	137.64	**(P1)**
Transmission heat loss coefficient:	22.1	
Summer heat loss coefficient:	159.77	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	251.85	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	336.28	323.29	329.67	
Total summer gains	603.62	575.14	551.23	**(P5)**
Summer gain/loss ratio	3.78	3.6	3.45	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.7	23.42	23.17	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.1m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 13 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.62 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.32 kg/m²	**Fail**

Excess emissions = 3.7 kg/m² (15 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.6 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 13 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.01
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	51.1 m²	2.75 m

Living area:	29.4 m² (fraction 0.575)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.628	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.625	10.24	10.39	0.18	0	False	0
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	61.875						0
P. Ceiling	51.1						0
Floorf	51.1						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4219

Length	Psi-value		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
12.8	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.018	0.03	E3	Sill
22.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 13 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.01
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	134.48	**(P1)**
Transmission heat loss coefficient:	23.2	
Summer heat loss coefficient:	157.71	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	251.85	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	330.99	318.23	324.52	
Total summer gains	598.33	570.08	546.09	**(P5)**
Summer gain/loss ratio	3.79	3.61	3.46	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.71	23.43	23.18	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 14 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.72 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.84 kg/m²	**Fail**

Excess emissions = 3.12 kg/m² (12.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.6 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	4.41m²
Windows facing: East	2.35m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 14 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.94
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.7 m² (fraction 0.521)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	East	1.728	2.55
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	6.76	10.84	0.18	0	False	0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.125						0
P. Ceiling	43.6						0
Floor	43.6						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.4237

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.088	0.03	E3	Sill
8.55	0.045	E4	Jamb
6.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
21.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 14 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.94
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	106.83	**(P1)**
Transmission heat loss coefficient:	17.8	
Summer heat loss coefficient:	124.59	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W04d)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	166.26	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.38	287.06	292.91	
Total summer gains	474.87	453.32	439.18	**(P5)**
Summer gain/loss ratio	3.81	3.64	3.52	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.72	23.45	23.23	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 68.5m²

Site Reference : Station Hill - Block E

Plot Reference: E09 15 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.02 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.53 kg/m²	**Fail**

Excess emissions = 3.51 kg/m² (17.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	25.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.0 kWh/m²	**Fail**

Excess energy = 3.10 kg/m² (12.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.19m²
Windows facing: South	4.7m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 15 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.97
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	68.5 m²	2.75 m

Living area:	27.8 m² (fraction 0.406)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.19	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.035	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	9.89	17.61	0.18	0	False	0
Internal Elements							
Int	121.55						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	68.5						0
Floor	68.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.332

Length	Psi-value		
4.755	0.067	E2	Other lintels (including other steel lintels)

SAP Input

12	0.045	E4	Jamb
10.49	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.755	0.03	E3	Sill
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 15 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.97
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	174.06	**(P1)**
Transmission heat loss coefficient:	24.5	
Summer heat loss coefficient:	198.58	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	232.27	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	405.36	389.46	397.09	
Total summer gains	646.13	621.73	626.25	**(P5)**
Summer gain/loss ratio	3.25	3.13	3.15	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.14	22.92	22.84	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.3m²

Site Reference : Station Hill - Block E

Plot Reference: E09 16 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.83 kg/m²	**Fail**

Excess emissions = 4.53 kg/m² (18.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.5 kWh/m²	**Fail**

Excess energy = 5.19 kg/m² (19.0 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.41m²
Windows facing: South	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 16 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.03
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.3 m²	2.75 m

Living area:	23 m² (fraction 0.531)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.728	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	7.95	9.65	0.18	0	False	0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.675						0
P. Ceiling	43.3						0
Floor	43.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.429

Length	**Psi-value**		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.58	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.118	0.03	E3	Sill
21.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 16 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.03
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	113.95	**(P1)**
Transmission heat loss coefficient:	19.1	
Summer heat loss coefficient:	133.07	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W04d)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (W02c)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	186.71	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	296.87	285.59	291.35	
Total summer gains	490.41	472.3	475.56	**(P5)**
Summer gain/loss ratio	3.69	3.55	3.57	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.59	23.36	23.28	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 42m²

Site Reference : Station Hill - Block E

Plot Reference: E09 17 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.66 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.83 kg/m²	**Fail**

Excess emissions = 4.17 kg/m² (16.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.7 kWh/m²	**Fail**

Excess energy = 4.73 kg/m² (17.5 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.41m²
Windows facing: South	2.35m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 17 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.14
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	42 m²	2.75 m

Living area:	21.3 m² (fraction 0.507)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.728	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.325	6.76	10.57	0.18	0	False	0
Internal Elements							
Int	61.325						9
Party Elements							
P.Wall	58.025						0
P. Ceiling	42						0
Floor	42						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4232

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
6.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.088	0.03	E3	Sill
21.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English
Wind turbine: No
Photovoltaics: None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 17 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.14
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	102.91	**(P1)**
Transmission heat loss coefficient:	17.6	
Summer heat loss coefficient:	120.5	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W04d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
						Total	158.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	291.44	280.41	286.14	
Total summer gains	456.01	439.17	442.78	**(P5)**
Summer gain/loss ratio	3.78	3.64	3.67	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.69	23.45	23.38	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 69.5m²

Site Reference : Station Hill - Block E

Plot Reference: E09 18 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	20.43 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.64 kg/m²	**Fail**

Excess emissions = 3.21 kg/m² (15.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.1 kWh/m²	**Fail**

Excess energy = 1.82 kg/m² (06.7 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.12m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 18 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.81
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	69.5 m²	2.75 m

Living area:	29.2 m² (fraction 0.42)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05a	16mm or more	0.8	0.38	1.3	4.12	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05a		Ext	South	2.035	2.025
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.375	8.82	25.56	0.18	0	False	0
Internal Elements							
Int	122.1						9
Party Elements							
P.Wall	64.075						0
P. Ceiling	69.5						0
Floor	69.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2688

Length	Psi-value		
4.755	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.755	0.021	E3	Sill
10.95	0.016	E4	Jamb
15.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
23.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 18 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.81
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	151.37	**(P1)**
Transmission heat loss coefficient:	24.7	
Summer heat loss coefficient:	176.11	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05a)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05a)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05a)	0.9 x	4.12	112.21	0.38	0.8	0.76	96.76	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	207.14	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	409.71	393.67	401.5	
Total summer gains	624.43	600.81	605.87	**(P5)**
Summer gain/loss ratio	3.55	3.41	3.44	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.43	23.2	23.13	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 82.7m²

Site Reference : Station Hill - Block E

Plot Reference: E09 19 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.51 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.42 kg/m²	**Fail**

Excess emissions = 3.91 kg/m² (18.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	6.61m²
Windows facing: South	2.35m²
Windows facing: East	6.61m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Ventilation rate:	3.00
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 19 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.27
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	82.7 m²	2.75 m

Living area:	35.9 m² (fraction 0.434)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08d	16mm or more	0.8	0.38	1.3	6.61	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08d	16mm or more	0.8	0.38	1.3	6.61	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08d		Ext	South	2.591	2.55
W02a		Ext	South	1.36	1.725
W08d		Ext	East	2.591	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	56.375	22.71	33.66	0.18	0	False	0
Internal Elements							
Int	177.1						9
Party Elements							
P.Wall	50.875						0

SAP Input

P. Ceiling	82.7	0
Floor	82.7	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1706

Length	Psi-value		
9.855	0.013	E2	Other lintels (including other steel lintels)
9.855	0.021	E3	Sill
22.2	0.016	E4	Jamb
23.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 19 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.27
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	225.15	**(P1)**
Transmission heat loss coefficient:	43.7	
Summer heat loss coefficient:	268.89	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W08d)	0	1
South (W02a)	0	1
East (W08d)	0	1
East (W04d)	0	1
East (W03a)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W08d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08d)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W08d)	0.9 x	6.61	112.21	0.38	0.8	0.76	155.24	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08d)	0.9 x	6.61	117.51	0.38	0.8	0.76	162.57	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
						Total	548.6	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	455.84	437.66	445.88	
Total summer gains	1032.95	986.26	951.01	**(P5)**
Summer gain/loss ratio	3.84	3.67	3.54	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	

SAP 2012 Overheating Assessment

Thermal mass temperature increment	1.87	1.87	1.87
Threshold temperature	21.71	23.43	23.2 **(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 83.5m²

Site Reference : Station Hill - Block E

Plot Reference: E09 20 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.17 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.83 kg/m²	**Fail**

Excess emissions = 3.66 kg/m² (15.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	2.4m²
Windows facing: East	7.14m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Windows facing: North	4.04m²
Ventilation rate:	3.00
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 20 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.38
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	83.5 m²	2.75 m

Living area:	38.3 m² (fraction 0.459)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08f	16mm or more	0.8	0.38	1.3	7.1	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1
W03d	16mm or more	0.8	0.38	1.3	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08f		Ext	North	2.785	2.55
W01b		Ext	North	0.94	2.55
W08f		Ext	East	2.8	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725
W03d		Ext	North	1.585	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.133	27.82	22.31	0.18	0	False	0

SAP Input

Internal Elements		
Int	170.5	9
Party Elements		
P.Wall	57.2	0
P. Ceiling	83.5	0
Floor	83.5	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1775

Length	Psi-value		
11.423	0.013	E2	Other lintels (including other steel lintels)
11.423	0.021	E3	Sill
28.95	0.016	E4	Jamb
13.56	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True

SAP Input

Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 20 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.38
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	227.33	**(P1)**
Transmission heat loss coefficient:	47.3	
Summer heat loss coefficient:	274.62	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08f)	0	1
North (W01b)	0	1
East (W08f)	0	1
East (W04d)	0	1
East (W03a)	0	1
North (W03d)	0	1

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Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08f)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (W08f)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W01b)	0.9 x	2.4	81.19	0.38	0.8	0.76	40.78	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
North (W03d)	0.9 x	4.04	81.19	0.38	0.8	0.76	68.65	
						Total	581.29	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	458.4	440.11	448.36	
Total summer gains	1080.13	1021.4	944.41	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.93	3.72	3.44	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.8	23.49	23.11	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 54.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 21 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.43 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.92 kg/m²	**Fail**

Excess emissions = 2.49 kg/m² (9.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 21 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.75 m

Living area:	31.9 m² (fraction 0.584)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	10.82	13.1	0.18	0	False	0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	65.175						0
P. Ceiling	54.6						0
Floor	54.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3308

Length	Psi-value		
4.243	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.243	0.021	E3	Sill
10.2	0.016	E4	Jamb
9	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
23.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 21 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	118.92	**(P1)**
Transmission heat loss coefficient:	23.6	
Summer heat loss coefficient:	142.56	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
						Total	183.86	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.96	339.5	
Total summer gains	545.3	516.82	488.99	**(P5)**
Summer gain/loss ratio	3.82	3.63	3.43	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.75	23.45	23.15	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 52m²

Site Reference : Station Hill - Block E

Plot Reference: E09 22 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.31 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.80 kg/m²	**Fail**

Excess emissions = 2.49 kg/m² (9.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	41.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.1 kWh/m²	**Fail**

Excess energy = 0.49 kg/m² (01.2 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.04m²
Windows facing: North	7.14m²
Windows facing: East	7.14m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 22 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 216.28
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52 m²	2.75 m

Living area:	30.6 m² (fraction 0.588)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.04	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.585	2.55
W08f		Ext	North	2.8	2.55
W08f		Ext	East	2.8	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	18.32	9.18	0.18	0	False	14
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	57.2						20
P. Ceiling	52						100
Floor	52						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2698

Length	Psi-value		
7.185	0.013	E2	Other lintels (including other steel lintels)
15.3	0.016	E4	Jamb
5.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.12	E18	Party wall between dwellings
7.185	0.021	E3	Sill
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 22 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 216.28
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	132.13	**(P1)**
Transmission heat loss coefficient:	31.7	
Summer heat loss coefficient:	163.84	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W08f)	0	1
East (W08f)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.04	81.19	0.38	0.8	0.76	68.65	
North (W08f)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
						Total	365.58	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	334.96	322.03	328.38	
Total summer gains	726.9	687.61	637.34	**(P5)**
Summer gain/loss ratio	4.44	4.2	3.89	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.49	0.49	0.49	
Threshold temperature	20.92	22.58	22.18	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 71m²

Site Reference : Station Hill - Block E

Plot Reference: E09 23 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.42 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.02 kg/m²	**Fail**

Excess emissions = 1.6 kg/m² (6.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 23 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.86
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	71 m²	2.75 m

Living area:	28.9 m² (fraction 0.407)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.6	14.36	14.24	0.18	0	False	0
Internal Elements							
Int	125.125						9
Party Elements							
P.Wall	69.025						0
P. Ceiling	71						0
Floor	71						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.296

Length	Psi-value		
5.633	0.013	E2	Other lintels (including other steel lintels)
5.633	0.021	E3	Sill
15.3	0.016	E4	Jamb
9.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
25.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 23 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.86
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	154.64	**(P1)**
Transmission heat loss coefficient:	28.8	
Summer heat loss coefficient:	183.41	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	244.01	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	414.53	398.16	405.76	
Total summer gains	678.52	642.17	604.16	**(P5)**
Summer gain/loss ratio	3.7	3.5	3.29	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.59	23.29	22.98	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 53.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 24 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.16 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.68 kg/m²	**Fail**

Excess emissions = 4.52 kg/m² (17.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	5.27m²
Windows facing: East	5.27m²
Windows facing: East	5.27m²
Ventilation rate:	3.20
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 24 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.51
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	53.6 m²	2.75 m

Living area:	28.8 m² (fraction 0.537)
Front of dwelling faces:	East

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W05e	16mm or more	0.8	0.38	1.3	5.27	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05c		Ext	North	2.065	2.55
W05c		Ext	East	2.065	2.55
W05e		Ext	East	2.065	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.65	15.81	18.84	0.18	0	False	0
Internal Elements							
Int	92.4						9
Party Elements							
P.Wall	49.225						0
P. Ceiling	53.6						0
Floor	53.6						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2519

Length	Psi-value		
6.195	0.067	E2	Other lintels (including other steel lintels)
6.195	0.03	E3	Sill
15.3	0.045	E4	Jamb
14.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.18	E16	Corner (normal)
17.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.9	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 24 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.51
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	155.65	**(P1)**
Transmission heat loss coefficient:	31.7	
Summer heat loss coefficient:	187.31	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W05c)	0	1
East (W05c)	0	1
East (W05e)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W05c)	0.85	0.9	1	0.76	**(P8)**
East (W05c)	0.85	0.9	1	0.76	**(P8)**
East (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W05c)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
East (W05c)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
East (W05e)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
						Total	348.78	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	342	328.76	335.23	
Total summer gains	714.06	677.54	636.1	**(P5)**
Summer gain/loss ratio	3.81	3.62	3.4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.7	23.41	23.09	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 54.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 25 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.57 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.24 kg/m²	**Fail**

Excess emissions = 2.67 kg/m² (10.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	5.19m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 25 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.64
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.75 m

Living area:	31.1 m² (fraction 0.57)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W05c	16mm or more	0.8	0.38	1.3	5.19	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W05c		Ext	North	2.035	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.375	11.89	11.49	0.18	0	False	0
Internal Elements							
Int	82.775						9
Party Elements							
P.Wall	62.975						0
P. Ceiling	55.8						0
Floor	55.8						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3489

Length	**Psi-value**		
4.663	0.067	E2	Other lintels (including other steel lintels)

SAP Input

4.663	0.03	E3	Sill
10.2	0.045	E4	Jamb
7.6	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
23	0	P3	Intermediate floor between dwellings (in blocks of flats)
23	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 25 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.64
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	123.87	**(P1)**
Transmission heat loss coefficient:	24.9	
Summer heat loss coefficient:	148.79	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W05c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W05c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W05c)	0.9 x	5.19	81.19	0.38	0.8	0.76	88.19	
						Total	202.04	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.97	339.5	
Total summer gains	564.97	535	503.78	**(P5)**
Summer gain/loss ratio	3.8	3.6	3.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.7	23.4	23.09	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 72.3m²

Site Reference : Station Hill - Block E

Plot Reference: E09 26 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.62 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.33 kg/m²	**Fail**

Excess emissions = 1.71 kg/m² (6.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	8.24m²
Windows facing: North	5.27m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 26 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 17.46
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	2
W05e	16mm or more	0.8	0.38	1.3	5.27	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W05e		Ext	North	2.065	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.05	13.51	36.54	0.18	0	False	0
Internal Elements							
Int	140.25						9
Party Elements							
P.Wall	49.775						0
P. Ceiling	72.3						0
Floor	72.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1943

Length	**Psi-value**		
5.295	0.013	E2	Other lintels (including other steel lintels)

SAP Input

5.295	0.021	E3	Sill
15.3	0.016	E4	Jamb
27.16	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 26 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 17.46
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	157.47	**(P1)**
Transmission heat loss coefficient:	33	
Summer heat loss coefficient:	190.47	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W05e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	8.24	81.19	0.38	0.8	0.76	140.02	
North (W05e)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
						Total	229.57	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.5	402.91	410.6	
Total summer gains	667.86	632.48	597.25	**(P5)**
Summer gain/loss ratio	3.51	3.32	3.14	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.38	23.1	22.81	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 72.3m²

Site Reference : Station Hill - Block E

Plot Reference: E09 27 - Level 9

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	21.09 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.72 kg/m²	**Fail**

Excess emissions = 2.63 kg/m² (12.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.4 kWh/m²	**Fail**

Excess energy = 0.72 kg/m² (02.3 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.18 kWh/day
Permitted by DBSCG: 1.85 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	8.08m²
Windows facing: South	5.27m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 27 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 55.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.75 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.04	2
W05e	16mm or more	0.8	0.38	1.3	5.27	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	South	1.585	2.55
W05e		Ext	South	2.065	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.05	13.35	36.7	0.18	0	False	0
Internal Elements							
Int	123.2						9
Party Elements							
P.Wall	49.775						0
P. Ceiling	72.3						0
Floor	72.3						40

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1943

Length	**Psi-value**		
5.235	0.013	E2	Other lintels (including other steel lintels)

SAP Input

5.235	0.021	E3	Sill
15.3	0.016	E4	Jamb
27.16	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
18.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 27 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 55.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	157.47	**(P1)**
Transmission heat loss coefficient:	32.8	
Summer heat loss coefficient:	190.3	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W03d)	0	1
South (W05e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W03d)	0.85	0.9	1	0.76	**(P8)**
South (W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W03d)	0.9 x	8.08	112.21	0.38	0.8	0.76	189.76	
South (W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
						Total	313.53	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.51	402.92	410.61	
Total summer gains	744.51	716.45	719.95	**(P5)**
Summer gain/loss ratio	3.91	3.76	3.78	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.61	1.61	1.61	
Threshold temperature	21.52	23.28	23.2	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:02

Project Information:

Assessed By: ()
Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE
Total Floor Area: 85m²
Site Reference : Station Hill - Block E
Plot Reference: E09 28 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	19.36 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	18.16 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	28.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	26.8 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**
Primary pipework insulated:	No primary pipework	

Regulations Compliance Report

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	3.47m²
Windows facing: West	3.54m²
Windows facing: South	2.4m²
Ventilation rate:	1.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 28 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 216.5
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	85 m²	2.75 m

Living area:	38.4 m² (fraction 0.452)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	West	1.36	2.55
W02c		Ext	West	1.39	2.55
W01b		Ext	South	0.94	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	9.41	14.51	0.18	0	False	0
Internal Elements							
Int	139.425						9
Party Elements							
P.Wall	92.4						20
P. Ceiling	85						100
Floor	85						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3525

Length	Psi-value		
3.69	0.013	E2	Other lintels (including other steel lintels)
15.3	0.016	E4	Jamb
10.02	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0	E17	Corner (inverted internal area greater than external area)
5.5	0.12	E18	Party wall between dwellings
3.69	0.021	E3	Sill
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 28 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 216.5
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	146.56	**(P1)**
Transmission heat loss coefficient:	22.7	
Summer heat loss coefficient:	169.24	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W02d)	0	1
West (W02c)	0	1
South (W01b)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W02d)	0.85	0.9	1	0.76	**(P8)**
West (W02c)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W02d)	0.9 x	3.47	117.51	0.38	0.8	0.76	85.34	
West (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	228.77	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	464.82	446.46	455.34	
Total summer gains	706.27	675.24	662.63	**(P5)**
Summer gain/loss ratio	4.17	3.99	3.92	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.48	0.48	0.48	
Threshold temperature	20.66	22.37	22.2	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E09 29 - Level 9
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.21 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.07 kg/m²	**Fail**

Excess emissions = 3.86 kg/m² (13.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	5.27m²
Windows facing: West	2.4m²
Ventilation rate:	3.00
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E09 29 - Level 9

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.12
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.8 m²	2.75 m

Living area:	31.4 m² (fraction 0.809)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.27	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	West	2.065	2.55
W01b		Ext	West	0.94	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	7.67	9.93	0.18	0	False	0
Internal Elements							
Int	47.96						9
Party Elements							
P.Wall	56.375						0
P. Ceiling	38.8						0
Floor	38.8						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4244

Length	Psi-value		
3.005	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.005	0.03	E3	Sill
10.2	0.045	E4	Jamb
8.14	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E09 29 - Level 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.12
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	105.63	**(P1)**
Transmission heat loss coefficient:	18.7	
Summer heat loss coefficient:	124.37	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W05e)	0	1
West (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W05e)	0.85	0.9	1	0.76	**(P8)**
West (W01b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W05e)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
West (W01b)	0.9 x	2.4	117.51	0.38	0.8	0.76	59.03	
						Total	188.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	277.8	267.34	272.8	
Total summer gains	478.05	455.98	438.76	**(P5)**
Summer gain/loss ratio	3.84	3.67	3.53	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.77	23.49	23.25	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 68.5m²

Site Reference : Station Hill - Block E

Plot Reference: E11 01 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.2 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.09 kg/m²	**Fail**

Excess emissions = 3.89 kg/m² (16.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.6 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 01 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.97
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	68.5 m²	2.75 m

Living area:	27.8 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	5.27	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	2.065	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	9.97	17.53	0.18	0	False	0
Roof	68.5	0	68.5	0.13	0		0
Internal Elements							
Int	121.55						9
Party Elements							
P.Wall	68.75						0
Floor	68.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1178

Length	Psi-value		
4.785	0.067	E2	Other lintels (including other steel lintels)

SAP Input

12	0.045	E4	Jamb
5.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
4.785	0.03	E3	Sill
5.2	0.56	E15	Flat roof with parapet
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 01 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.97
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	149.19	**(P1)**
Transmission heat loss coefficient:	35.7	
Summer heat loss coefficient:	184.88	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	405.34	389.43	397.06	
Total summer gains	648.05	623.58	628.08	**(P5)**
Summer gain/loss ratio	3.51	3.37	3.4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.39	23.16	23.09	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.3m²

Site Reference : Station Hill - Block E

Plot Reference: E11 02 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	27.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.36 kg/m²	**Fail**

Excess emissions = 5.06 kg/m² (18.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.0 kWh/m²	**Fail**

Excess energy = 1.23 kg/m² (03.3 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.41m²
Windows facing: South	3.54m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 02 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.03
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.3 m²	2.75 m

Living area:	23 m² (fraction 0.531)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.728	2.55
W02c		Ext	South	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	7.95	9.65	0.18	0	False	0
Roof	43.3	0	43.3	0.13	0		0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.675						0
Floor	43.3						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1467			
	Length	**Psi-value**		
	3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
3.29	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.29	0.56	E15	Flat roof with parapet
3.118	0.03	E3	Sill
21.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 02 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.03
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	106.1	**(P1)**
Transmission heat loss coefficient:	26.1	
Summer heat loss coefficient:	132.22	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W04d)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (W02c)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	186.71	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	296.87	285.59	291.35	
Total summer gains	490.41	472.3	475.56	**(P5)**
Summer gain/loss ratio	3.71	3.57	3.6	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.62	23.38	23.31	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 42m²

Site Reference : Station Hill - Block E

Plot Reference: E11 03 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.57 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.02 kg/m²	**Fail**

Excess emissions = 2.45 kg/m² (8.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.7 kWh/m²	**Fail**

Excess energy = 0.05 kg/m² (00.1 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.41m²
Windows facing: South	2.35m²
Ventilation rate:	2.10
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 03 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 133.29
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	42 m²	2.75 m

Living area:	21.3 m² (fraction 0.507)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	South	1.728	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.325	6.76	10.57	0.18	0	False	14
Roof	42	0	42	0.13	0		9
Internal Elements							
Int	61.325						9
Party Elements							
P.Wall	58.025						20
Floor	42						80

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1824

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
6.3	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.088	0.03	E3	Sill
6.3	0.56	E15	Flat roof with parapet
21.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 03 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 133.29
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	80.04	**(P1)**
Transmission heat loss coefficient:	26.5	
Summer heat loss coefficient:	106.58	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W04d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W04d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
						Total	158.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	291.44	280.41	286.14	
Total summer gains	456.01	439.17	442.78	**(P5)**
Summer gain/loss ratio	4.28	4.12	4.15	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.07	1.07	1.07	
Threshold temperature	21.35	23.09	23.02	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 69.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 04 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.06 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.56 kg/m²	**Fail**

Excess emissions = 3.5 kg/m² (14.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	4.12m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 04 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.81
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	69.5 m²	2.75 m

Living area:	29.2 m² (fraction 0.42)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05a	16mm or more	0.8	0.38	1.3	4.12	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05a		Ext	South	2.035	2.025
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.375	8.82	25.56	0.18	0	False	0
Roof	69.5	0	69.5	0.13	0		0
Internal Elements							
Int	122.1						9
Party Elements							
P.Wall	64.075						0
Floor	69.5						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1201

Length	Psi-value		
4.755	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.755	0.021	E3	Sill
10.95	0.016	E4	Jamb
7.7	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
7.7	0.56	E15	Flat roof with parapet
23.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 04 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.81
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	151.37	**(P1)**
Transmission heat loss coefficient:	37	
Summer heat loss coefficient:	188.38	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W05a)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W05a)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W05a)	0.9 x	4.12	112.21	0.38	0.8	0.76	96.76	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	207.14	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	409.71	393.67	401.5	
Total summer gains	624.43	600.81	605.87	**(P5)**
Summer gain/loss ratio	3.31	3.19	3.22	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.2	22.98	22.91	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 82.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 05 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.07 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.46 kg/m²	**Fail**

Excess emissions = 4.39 kg/m² (17.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	44.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.1m²
Windows facing: South	2.35m²
Windows facing: East	6.61m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 05 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.27
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	82.7 m²	2.75 m

Living area:	35.9 m² (fraction 0.434)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08d	16mm or more	0.8	0.38	1.3	7.1	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08d	16mm or more	0.8	0.38	1.3	6.61	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08d		Ext	South	2.785	2.55
W02a		Ext	South	1.36	1.725
W08d		Ext	East	2.591	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	56.375	23.2	33.18	0.18	0	False	0
Roof	82.7	0	82.7	0.13	0		0
Internal Elements							
Int	177.1						9

SAP Input

Party Elements

P.Wall	50.875	0
Floor	82.7	0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0981

Length	Psi-value		
10.049	0.013	E2	Other lintels (including other steel lintels)
10.049	0.021	E3	Sill
22.2	0.016	E4	Jamb
10.5	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
10.5	0.56	E15	Flat roof with parapet
18.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

SAP Input

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 05 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.27
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	210.14	**(P1)**
Transmission heat loss coefficient:	59	
Summer heat loss coefficient:	269.17	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08d)	0	1
South (W02a)	0	1
East (W08d)	0	1
East (W04d)	0	1
East (W03a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08d)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08d)	0.9 x	7.1	112.21	0.38	0.8	0.76	166.74	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08d)	0.9 x	6.61	117.51	0.38	0.8	0.76	162.57	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
						Total	560.11	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	455.84	437.66	445.88	
Total summer gains	1044.88	997.77	962.36	**(P5)**
Summer gain/loss ratio	3.88	3.71	3.58	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	

SAP 2012 Overheating Assessment

Thermal mass temperature increment	1.87	1.87	1.87
Threshold temperature	21.75	23.47	23.24 **(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 83.5m²

Site Reference : Station Hill - Block E

Plot Reference: E11 06 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.26 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.73 kg/m²	**Fail**

Excess emissions = 4.47 kg/m² (15.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	59.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	50.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.14m²
Windows facing: North	2.32m²
Windows facing: East	7.14m²
Windows facing: East	4.41m²
Windows facing: East	2.73m²
Windows facing: North	4.12m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 06 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.38
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	83.5 m²	2.75 m

Living area:	38.3 m² (fraction 0.459)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W01b	16mm or more	0.8	0.38	1.3	2.32	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W03a	16mm or more	0.8	0.38	1.3	2.73	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08f		Ext	North	2.8	2.55
W01b		Ext	North	0.91	2.55
W08f		Ext	East	2.8	2.55
W04d		Ext	East	1.728	2.55
W03a		Ext	East	1.585	1.725
W03d		Ext	North	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	50.133	27.86	22.27	0.18	0	False	0

SAP Input

Roof	83.5	0	83.5	0.13	0	0
Internal Elements						
Int	170.5					9
Party Elements						
P.Wall	57.2					0
Floor	83.5					0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1479

Length	Psi-value		
11.438	0.013	E2	Other lintels (including other steel lintels)
11.438	0.021	E3	Sill
28.95	0.016	E4	Jamb
18.23	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
18.23	0.56	E15	Flat roof with parapet
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True

SAP Input

Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 06 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.38
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	212.17	**(P1)**
Transmission heat loss coefficient:	69.1	
Summer heat loss coefficient:	281.23	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08f)	0	1
North (W01b)	0	1
East (W08f)	0	1
East (W04d)	0	1
East (W03a)	0	1
North (W03d)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08f)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W03a)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (W08f)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
North (W01b)	0.9 x	2.32	81.19	0.38	0.8	0.76	39.42	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W03a)	0.9 x	2.73	117.51	0.38	0.8	0.76	67.14	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	581.97	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	458.4	440.11	448.36	
Total summer gains	1080.87	1022.08	944.97	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.84	3.63	3.36	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.71	23.41	23.03	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:01

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 54.6m²

Site Reference : Station Hill - Block E

Plot Reference: E11 07 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.72 kg/m²	**Fail**

Excess emissions = 2.72 kg/m² (9.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	51.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 07 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.75 m

Living area:	31.9 m² (fraction 0.584)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	10.82	13.1	0.18	0	False	0
Roof	54.6	0	54.6	0.13	0		0
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	65.175						0
Floor	54.6						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1249

Length	Psi-value		
4.243	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.243	0.021	E3	Sill
10.2	0.016	E4	Jamb
4.5	0.14	E7	Party floor between dwellings (in blocks of flats)
4.5	0.56	E15	Flat roof with parapet
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
23.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 1
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 07 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	118.92	**(P1)**
Transmission heat loss coefficient:	32.6	
Summer heat loss coefficient:	151.55	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
						Total	183.86	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.96	339.5	
Total summer gains	545.3	516.82	488.99	**(P5)**
Summer gain/loss ratio	3.6	3.41	3.23	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.52	23.23	22.95	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 52m²

Site Reference : Station Hill - Block E

Plot Reference: E11 08 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29.45 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.86 kg/m²	**Fail**

Excess emissions = 5.41 kg/m² (18.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	51.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	47.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	7.14m²
Windows facing: East	7.14m²
Ventilation rate:	3.20
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 08 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.8
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52 m²	2.75 m

Living area:	30.6 m² (fraction 0.588)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1
W08f	16mm or more	0.8	0.38	1.3	7.14	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W08f		Ext	North	2.8	2.55
W08f		Ext	East	2.8	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.5	18.4	9.1	0.18	0	False	0
Roof	52	0	52	0.13	0		0
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	57.2						0
Floor	52						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1081

Length	Psi-value		
7.215	0.013	E2	Other lintels (including other steel lintels)
7.215	0.021	E3	Sill
15.3	0.016	E4	Jamb
2.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.8	0.56	E15	Flat roof with parapet
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.18	E16	Corner (normal)
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory

DRAFT

SAP Input

Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 08 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.8
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	3.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	151.01	**(P1)**
Transmission heat loss coefficient:	39.7	
Summer heat loss coefficient:	190.74	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W08f)	0	1
East (W08f)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W08f)	0.85	0.9	1	0.76	**(P8)**
East (W08f)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W08f)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
East (W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
						Total	366.94	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	334.96	322.03	328.38	
Total summer gains	728.37	688.97	638.44	**(P5)**
Summer gain/loss ratio	3.82	3.61	3.35	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.74	23.43	23.06	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 71m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 09 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.75 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.47 kg/m²	**Fail**

Excess emissions = 1.72 kg/m² (6.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	50.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.8 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 09 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 24.86
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	71 m²	2.75 m

Living area:	28.9 m² (fraction 0.407)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.6	14.36	14.24	0.18	0	False	0
Roof	71	0	71	0.13	0		9
Internal Elements							
Int	125.125						9
Party Elements							
P.Wall	69.025						0
Floor	71						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1052

Length	Psi-value		
5.633	0.013	E2	Other lintels (including other steel lintels)
5.633	0.021	E3	Sill
15.3	0.016	E4	Jamb
4.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
4.8	0.56	E15	Flat roof with parapet
25.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 09 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 24.86
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	154.64	**(P1)**
Transmission heat loss coefficient:	40	
Summer heat loss coefficient:	194.66	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03d)	0	1
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03d)	0.85	0.9	1	0.76	**(P8)**
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	244.01	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	414.53	398.16	405.76	
Total summer gains	678.52	642.17	604.16	**(P5)**
Summer gain/loss ratio	3.49	3.3	3.1	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.83	1.83	1.83	
Threshold temperature	21.31	23.02	22.73	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 83.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 10 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.92 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.51 kg/m²	**Fail**

Excess emissions = 3.59 kg/m² (12.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	62.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	49.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	5.27m²
Windows facing: East	5.27m²
Windows facing: North	5.27m²
Windows facing: North	6.62m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 10 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 18.26
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	83.5 m²	2.75 m

Living area:	33.6 m² (fraction 0.402)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W05c	16mm or more	0.8	0.38	1.3	5.27	1
W06d	16mm or more	0.8	0.38	1.3	6.62	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05c		Ext	East	2.065	2.55
W05d		Ext	East	2.065	2.55
W05c		Ext	North	2.065	2.55
W06d		Ext	North	2.598	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	72.05	22.43	49.62	0.18	0	False	0
Roof	83.5	0	83.5	0.13	0		0
Internal Elements							
Int	169.373						9
Party Elements							
P.Wall	46.2						0
Floor	83.5						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1226

Length	Psi-value		
8.793	0.067	E2	Other lintels (including other steel lintels)
8.793	0.03	E3	Sill
20.4	0.045	E4	Jamb
17.4	0.14	E7	Party floor between dwellings (in blocks of flats)
17.4	0.56	E15	Flat roof with parapet
5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
16.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
16.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 1

Pressure test: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

SAP Input

Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 10 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 18.26
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	181.86	**(P1)**
Transmission heat loss coefficient:	66.6	
Summer heat loss coefficient:	248.45	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W05c)	0	1
East (W05d)	0	1
North (W05c)	0	1
North (W06d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W05c)	0.85	0.9	1	0.76	**(P8)**
East (W05d)	0.85	0.9	1	0.76	**(P8)**
North (W05c)	0.85	0.9	1	0.76	**(P8)**
North (W06d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W05c)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
East (W05d)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
North (W05c)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
North (W06d)	0.9 x	6.62	81.19	0.38	0.8	0.76	112.49	
						Total	461.27	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	458.4	440.11	448.36	
Total summer gains	952.16	901.38	840.69	**(P5)**
Summer gain/loss ratio	3.83	3.63	3.38	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.7	23.4	23.06	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 52.7m²

Site Reference : Station Hill - Block E

Plot Reference: E11 11 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	34.65 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	40.72 kg/m²	**Fail**

Excess emissions = 6.07 kg/m² (17.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	70.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	60.0 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	15.81m²
Ventilation rate:	2.60
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 11 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 53.21
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	52.7 m²	2.75 m

Living area:	26.6 m² (fraction 0.505)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05c	16mm or more	0.8	0.38	1.3	5.27	3

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05c		Ext	East	2.065	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	72.05	15.81	56.24	0.18	0	False	14
Roof	52.7	0	52.7	0.13	0		9
Internal Elements							
Int	68.75						9
Party Elements							
P.Wall	46.2						20
Floor	52.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1575

Length	Psi-value		
6.195	0.013	E2	Other lintels (including other steel lintels)
15.3	0.016	E4	Jamb
20	0.14	E7	Party floor between dwellings (in blocks of flats)
20	0.56	E15	Flat roof with parapet

SAP Input

2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
6.195	0.021	E3	Sill
16.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
16.8	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 11 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 53.21
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	124.35	**(P1)**
Transmission heat loss coefficient:	56.2	
Summer heat loss coefficient:	180.5	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W05c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W05c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W05c)	0.9 x	15.81	117.51	0.38	0.8	0.76	388.84	
						Total	388.84	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	338.04	324.98	331.38	
Total summer gains	750.81	713.82	673.47	**(P5)**
Summer gain/loss ratio	4.16	3.95	3.73	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.63	1.63	1.63	
Threshold temperature	21.79	23.48	23.16	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 12 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	31.69 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	35.10 kg/m²	**Fail**

Excess emissions = 3.41 kg/m² (10.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	47.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.4 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: West	3.54m²
Windows facing: West	2.32m²
Ventilation rate:	2.56
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 12 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.12
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.8 m²	2.75 m

Living area:	31.4 m² (fraction 0.809)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W01b	16mm or more	0.8	0.38	1.3	2.32	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	West	1.39	2.55
W01b		Ext	West	0.91	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	5.86	11.74	0.18	0	False	0
Roof	38.8	0	38.8	0.13	0		0
Internal Elements							
Int	47.96						9
Party Elements							
P.Wall	56.375						0
Floor	38.8						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1541

Length	Psi-value		
2.3	0.013	E2	Other lintels (including other steel lintels)

SAP Input

2.3	0.021	E3	Sill
10.2	0.016	E4	Jamb
4.1	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.1	0.56	E15	Flat roof with parapet
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.5	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 12 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.12
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.56 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	90.14	**(P1)**
Transmission heat loss coefficient:	23.1	
Summer heat loss coefficient:	113.23	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (W05e)	0	1
West (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (W05e)	0.85	0.9	1	0.76	**(P8)**
West (W01b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (W05e)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
West (W01b)	0.9 x	2.32	117.51	0.38	0.8	0.76	57.06	
						Total	144.12	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	278.06	267.62	273.17	
Total summer gains	431.05	411.75	399.96	**(P5)**
Summer gain/loss ratio	3.81	3.64	3.53	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.73	23.46	23.25	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 13 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29.02 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.51 kg/m²	**Fail**

Excess emissions = 3.49 kg/m² (12 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.3 kWh/m²	
		OK

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2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	4.41m²
Windows facing: East	2.35m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

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10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 13 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.94
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.7 m² (fraction 0.521)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	East	1.728	2.55
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.6	6.76	10.84	0.18	0	False	0
Roof	43.6	0	43.6	0.13	0		0
Internal Elements							
Int	62.7						9
Party Elements							
P.Wall	59.125						0
Floor	43.6						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.146

Length	Psi-value		
3.088	0.067	E2	Other lintels (including other steel lintels)

SAP Input

3.088	0.03	E3	Sill
8.55	0.045	E4	Jamb
3.4	0.14	E7	Party floor between dwellings (in blocks of flats)
3.4	0.56	E15	Flat roof with parapet
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
21.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 1
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

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SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 13 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.94
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	98.92	**(P1)**
Transmission heat loss coefficient:	24.9	
Summer heat loss coefficient:	123.82	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W04d)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W04d)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	166.26	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.38	287.06	292.91	
Total summer gains	474.87	453.32	439.18	**(P5)**
Summer gain/loss ratio	3.84	3.66	3.55	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.74	23.47	23.26	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

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Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 49.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 14 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.09 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.14 kg/m²	**Fail**

Excess emissions = 4.05 kg/m² (14.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	46.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.2 kWh/m²	
		OK

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2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
Efficiency 100.0

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.62m²
Windows facing: East	3.54m²
Ventilation rate:	2.80
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

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10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 14 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.35
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	49.7 m²	2.75 m

Living area:	28.9 m² (fraction 0.581)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06d	16mm or more	0.8	0.38	1.3	6.62	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06d		Ext	East	2.598	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	20.625	10.16	10.47	0.18	0	False	0
Roof	49.7	0	49.7	0.13	0		0
Internal Elements							
Int	68.2						9
Party Elements							
P.Wall	65.175						0
Floorf	49.7						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1371

Length	Psi-value		
3.988	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
3.5	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.988	0.03	E3	Sill
3.5	0.56	E15	Flat roof with parapet
23.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

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SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 14 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.35
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	126.29	**(P1)**
Transmission heat loss coefficient:	30.5	
Summer heat loss coefficient:	156.83	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06d)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06d)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06d)	0.9 x	6.62	117.51	0.38	0.8	0.76	162.82	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	249.88	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	324.82	312.32	318.52	
Total summer gains	590.07	562.21	538.35	**(P5)**
Summer gain/loss ratio	3.76	3.58	3.43	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.68	23.4	23.15	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

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Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:00

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 69.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 15 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.81 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.10 kg/m²	**Fail**

Excess emissions = 1.29 kg/m² (5.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.0 kWh/m²	
		OK

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2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: East	6.7m²
Windows facing: East	3.54m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

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10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 15 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 117.18
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	69.8 m²	2.75 m

Living area:	47 m² (fraction 0.673)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	East	2.628	2.55
W02c		Ext	East	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	19.25	10.24	9.01	0.18	0	False	14
Roof	69.8	0	69.8	0.13	0		9
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	62.7						20
Floor	69.8						80

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1083

Length	**Psi-value**		
4.018	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
3.5	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
3.5	0.56	E15	Flat roof with parapet
4.018	0.03	E3	Sill
23.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.7	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)
Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 1
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English
Wind turbine: No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

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SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 15 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 117.18
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	152.02	**(P1)**
Transmission heat loss coefficient:	33	
Summer heat loss coefficient:	185.02	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	0.85	0.9	1	0.76	**(P8)**
East (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
						Total	251.85	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	410.42	394.29	401.99	
Total summer gains	677.76	646.14	623.55	**(P5)**
Summer gain/loss ratio	3.66	3.49	3.37	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.18	1.18	1.18	
Threshold temperature	20.84	22.57	22.35	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 38.3m²

Site Reference : Station Hill - Block E

Plot Reference: E11 16 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	33.74 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	37.60 kg/m²	**Fail**

Excess emissions = 3.86 kg/m² (11.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	54.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	45.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 16 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 11.18
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	32 m² (fraction 0.836)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W06c	16mm or more	0.8	0.38	1.3	6.7	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.133	10.24	6.89	0.18	0	False	0
Roof	38.3	0	38.3	0.13	0		0
Internal Elements							
Int	47.575						9
Party Elements							
P.Wall	52.525						0
Floor	38.3						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.138			
	Length	**Psi-value**		
	3.958	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
2.23	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.018	0.03	E3	Sill
2.23	0.56	E15	Flat roof with parapet
19.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 16 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 11.18
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	100.8	**(P1)**
Transmission heat loss coefficient:	26.5	
Summer heat loss coefficient:	127.32	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W06c)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W06c)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	174	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.73	265.36	270.79	
Total summer gains	463.98	439.37	412.27	**(P5)**
Summer gain/loss ratio	3.64	3.45	3.24	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.57	23.27	22.96	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 41.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 17 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	31.36 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.47 kg/m²	**Fail**

Excess emissions = 3.11 kg/m² (9.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	50.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.41m²
Windows facing: North	3.54m²
Ventilation rate:	2.30
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 17 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 12.35
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	41.9 m²	2.75 m

Living area:	21.3 m² (fraction 0.508)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W04d	16mm or more	0.8	0.38	1.3	4.41	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W04d		Ext	North	1.728	2.55
W02c		Ext	North	1.39	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	18.975	7.95	11.03	0.18	0	False	0
Roof	41.9	0	41.9	0.13	0		0
Internal Elements							
Int	57.475						9
Party Elements							
P.Wall	57.75						0
Floor	41.9						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1498			
	Length	**Psi-value**		
	3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
3.8	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
3.118	0.03	E3	Sill
3.8	0.56	E15	Flat roof with parapet
21	0	P3	Intermediate floor between dwellings (in blocks of flats)
21	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

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Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 17 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 12.35
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	87.46	**(P1)**
Transmission heat loss coefficient:	26.4	
Summer heat loss coefficient:	113.83	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W04d)	0	1
North (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W04d)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W04d)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	135.09	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	290.85	279.83	285.49	
Total summer gains	437	414.92	395.33	**(P5)**
Summer gain/loss ratio	3.84	3.64	3.47	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.75	23.46	23.19	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 43.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 18 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	31.86 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	36.58 kg/m²	**Fail**

Excess emissions = 4.72 kg/m² (14.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	54.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	47.6 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.63m²
Windows facing: North	3.54m²
Windows facing: East	4.63m²
Ventilation rate:	2.90
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 18 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.25
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.7 m²	2.75 m

Living area:	24.4 m² (fraction 0.558)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W07b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W07b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W07b	16mm or more	0.8	0.38	1.3	4.63	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W07b	16mm or more	0.8	0.38	1.3	4.63	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W07b		Ext	North	1.815	2.55
W02c		Ext	North	1.39	2.55
W07b		Ext	East	1.815	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	26.125	12.8	13.32	0.18	0	False	0
Roof	43.7	0	43.7	0.13	0		0
Internal Elements							
Int	78.925						9
Party Elements							
P.Wall	55						0
Floor	43.7						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1401

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
4.5	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings c
5.02	0.03	E3	Sill
4.5	0.56	E15	Flat roof with parapet
20	0	P3	Intermediate floor between dwellings (in blocks of flats)
20	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 18 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.25
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	115.01	**(P1)**
Transmission heat loss coefficient:	33.7	
Summer heat loss coefficient:	148.69	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W07b)	0	1
North (W02c)	0	1
East (W07b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W07b)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
East (W07b)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W07b)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (W07b)	0.9 x	4.63	117.51	0.38	0.8	0.76	113.87	
						Total	252.7	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.57	287.21	292.99	
Total summer gains	569.64	539.91	506.05	**(P5)**
Summer gain/loss ratio	3.83	3.63	3.4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.72	23.42	23.09	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.5m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 19 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	26.8 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.03 kg/m²	**Fail**

Excess emissions = 2.23 kg/m² (8.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	48.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	3.54m²
Windows facing: North	3.54m²
Windows facing: North	4.12m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 19 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.79
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.5 m²	2.75 m

Living area:	27.4 m² (fraction 0.406)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	North	1.39	2.55
W02c		Ext	North	1.39	2.55
W03d		Ext	North	1.615	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.875	11.2	17.68	0.18	0	False	0
Roof	67.5	0	67.5	0.13	0		0
Internal Elements							
Int	125.95						9
Party Elements							
P.Wall	68.75						0
Floor	67.5						0

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.125

Length	Psi-value		
4.395	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
4.395	0.03	E3	Sill
6.1	0.14	E7	Party floor between dwellings (in blocks of flats)
6.1	0.56	E15	Flat roof with parapet
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3
Pressure test: 2.5

Main heating system:

DRAFT

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%

SAP Input

Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 19 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.79
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	153.14	**(P1)**
Transmission heat loss coefficient:	37.8	
Summer heat loss coefficient:	190.98	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W05e)	0	1
North (W02c)	0	1
North (W03d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W05e)	0.85	0.9	1	0.76	**(P8)**
North (W02c)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W05e)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W02c)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	190.31	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	401.04	385.28	392.73	
Total summer gains	606.94	575.59	547.48	**(P5)**
Summer gain/loss ratio	3.18	3.01	2.87	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.06	22.8	22.55	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 20 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.15 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.99 kg/m²	**Fail**

Excess emissions = 2.84 kg/m² (10.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	58.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	46.2 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	7.1m²
Windows facing: North	4.12m²
Windows facing: East	3.4m²
Windows facing: North	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 20 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.15
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m

Living area:	35.2 m² (fraction 0.433)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08c	16mm or more	0.8	0.38	1.3	7.1	1
W03d	16mm or more	0.8	0.38	1.3	4.12	1
W08c	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04a	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08c		Ext	North	2.785	2.55
W03d		Ext	North	1.615	2.55
W08c		Ext	East	1.335	2.55
W01b		Ext	North	0.94	2.55
W04a		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	22.3	36.28	0.18	0	False	0

SAP Input

Roof	81.3	0	81.3	0.13	0	0
Internal Elements						
Int	172.975					9
Party Elements						
P.Wall	50.05					0
Floor	81.3					0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1027

Length	Psi-value		
9.733	0.067	E2	Other lintels (including other steel lintels)
27.3	0.045	E4	Jamb
11.6	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
9.733	0.03	E3	Sill
11.6	0.56	E15	Flat roof with parapet
18.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.2	0.16	P7	Exposed floor (normal)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True

SAP Input

Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 20 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.15
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	177.07	**(P1)**
Transmission heat loss coefficient:	59	
Summer heat loss coefficient:	236.09	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08c)	0	1
North (W03d)	0	1
East (W08c)	0	1
North (W01b)	0	1
East (W04a)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08c)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**
East (W08c)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04a)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (W08c)	0.9 x	7.1	81.19	0.38	0.8	0.76	120.65	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
East (W08c)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
North (W01b)	0.9 x	2.4	81.19	0.38	0.8	0.76	40.78	
East (W04a)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	444.92	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	928.28	878.22	817.44	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.93	3.72	3.46	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.8	23.49	23.13	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 81.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 21 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	24.7 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.91 kg/m²	**Fail**

Excess emissions = 4.21 kg/m² (17 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	47.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.1m²
Windows facing: South	2.35m²
Windows facing: East	3.4m²
Windows facing: South	2.4m²
Windows facing: East	2.93m²
Windows facing: East	2.35m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 21 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 19.91
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	81.3 m²	2.75 m

Living area:	35.2 m² (fraction 0.433)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08a	16mm or more	0.8	0.38	1.3	7.1	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1
W08a	16mm or more	0.8	0.38	1.3	3.4	1
W01b	16mm or more	0.8	0.38	1.3	2.4	1
W04e	16mm or more	0.8	0.38	1.3	2.93	1
W02a	16mm or more	0.8	0.38	1.3	2.35	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08a		Ext	South	2.785	2.55
W02a		Ext	South	1.36	1.725
W08a		Ext	East	1.335	2.55
W01b		Ext	South	0.94	2.55
W04e		Ext	East	1.698	1.725
W02a		Ext	East	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	58.575	20.53	38.05	0.18	0	False	0

SAP Input

Roof	81.3	0	81.3	0.13	0	0
Internal Elements						
Int	179.85					9
Party Elements						
P.Wall	50.05					0
Floor	81.3					0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0908

Length	Psi-value		
9.478	0.013	E2	Other lintels (including other steel lintels)
25.65	0.016	E4	Jamb
9.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
9.2	0.56	E15	Flat roof with parapet
9.478	0.021	E3	Sill
18.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 2.5

DRAFT

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True

SAP Input

Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 21 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 19.91
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	199.21	**(P1)**
Transmission heat loss coefficient:	55.5	
Summer heat loss coefficient:	254.69	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08a)	0	1
South (W02a)	0	1
East (W08a)	0	1
South (W01b)	0	1
East (W04e)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08a)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**
East (W08a)	0.85	0.9	1	0.76	**(P8)**
South (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04e)	0.85	0.9	1	0.76	**(P8)**
East (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W08a)	0.9 x	7.1	112.21	0.38	0.8	0.76	166.74	
South (W02a)	0.9 x	2.35	112.21	0.38	0.8	0.76	55.19	
East (W08a)	0.9 x	3.4	117.51	0.38	0.8	0.76	83.62	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
East (W04e)	0.9 x	2.93	117.51	0.38	0.8	0.76	72.06	
East (W02a)	0.9 x	2.35	117.51	0.38	0.8	0.76	57.8	
						Total	491.78	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	966.37	925.08	903.84	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.79	3.63	3.55	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.86	1.86	1.86	
Threshold temperature	21.65	23.39	23.21	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 38.3m²

Site Reference : Station Hill - Block E

Plot Reference: E11 22 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29.8 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.49 kg/m²	**Fail**

Excess emissions = 4.69 kg/m² (15.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.4 kWh/m²	**Fail**

Excess energy = 0.22 kg/m² (00.5 %)

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	1.57m²
Ventilation rate:	2.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 22 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.34
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.75 m

Living area:	27.9 m² (fraction 0.728)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W01a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W01a	16mm or more	0.8	0.38	1.3	1.57	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W01a		Ext	South	0.91	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	17.875	6.84	11.03	0.18	0	False	0
Roof	38.3	0	38.3	0.13	0		0
Internal Elements							
Int	56.788						9
Party Elements							
P.Wall	55.825						0
Floor	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1463

Length	Psi-value		
2.975	0.013	E2	Other lintels (including other steel lintels)

SAP Input

2.975	0.021	E3	Sill
8.55	0.016	E4	Jamb
3.5	0.14	E7	Party floor between dwellings (in blocks of flats)
3.5	0.56	E15	Flat roof with parapet
5.5	0.12	E18	Party wall between dwellings
20.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.3	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 1 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 22 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	93.84	**(P1)**
Transmission heat loss coefficient:	23.6	
Summer heat loss coefficient:	117.48	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W01a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W01a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W01a)	0.9 x	1.57	112.21	0.38	0.8	0.76	36.87	
						Total	160.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.78	265.41	270.86	
Total summer gains	442.29	426.05	429.35	**(P5)**
Summer gain/loss ratio	3.76	3.63	3.65	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.67	23.43	23.36	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:59

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 43.6m²

Site Reference : Station Hill - Block E

Plot Reference: E11 23 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.66 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.71 kg/m²	**Fail**

Excess emissions = 5.05 kg/m² (17.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.6 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.47m²
Windows facing: South	4.33m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 23 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 13.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.75 m

Living area:	22.5 m² (fraction 0.516)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W02d	16mm or more	0.8	0.38	1.3	3.47	1
W04c	16mm or more	0.8	0.38	1.3	4.33	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02d		Ext	South	1.36	2.55
W04c		Ext	South	1.698	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	25.85	7.8	18.05	0.18	0	False	0
Roof	43.6	0	43.6	0.13	0		0
Internal Elements							
Int	63.25						9
Party Elements							
P.Wall	52.8						0
Floor	43.6						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1513

Length	**Psi-value**		
3.058	0.013	E2	Other lintels (including other steel lintels)

SAP Input

3.058	0.021	E3	Sill
10.2	0.016	E4	Jamb
6.4	0.14	E7	Party floor between dwellings (in blocks of flats)
6.4	0.56	E15	Flat roof with parapet
2.75	0.12	E18	Party wall between dwellings
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.18	E16	Corner (normal)
19.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.2	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 2.5

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: Manufacturer Declaration
Manufacturer's data
Efficiency: 100.0%
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Dual
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English

SAP Input

Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 23 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 13.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	98.92	**(P1)**
Transmission heat loss coefficient:	29.1	
Summer heat loss coefficient:	127.98	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W02d)	0	1
South (W04c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W02d)	0.85	0.9	1	0.76	**(P8)**
South (W04c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W02d)	0.9 x	3.47	112.21	0.38	0.8	0.76	81.49	
South (W04c)	0.9 x	4.33	112.21	0.38	0.8	0.76	101.69	
						Total	183.18	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.19	286.85	292.64	
Total summer gains	488.07	470.03	473.38	**(P5)**
Summer gain/loss ratio	3.81	3.67	3.7	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.72	23.48	23.41	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:58

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 67.7m²

Site Reference : Station Hill - Block E

Plot Reference: E11 24 - Level 11

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.74 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.35 kg/m²	**Fail**

Excess emissions = 3.61 kg/m² (15.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	3.54m²
Windows facing: South	6.94m²
Ventilation rate:	2.50
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 24 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 25.31
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	27.5 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05e	16mm or more	0.8	0.38	1.3	3.54	1
W02c	16mm or more	0.8	0.38	1.3	3.47	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05e		Ext	South	1.39	2.55
W02c		Ext	South	1.36	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	30.525	10.48	20.04	0.18	0	False	0
Roof	67.7	0	67.7	0.13	0		9
Internal Elements							
Int	122.65						9
Party Elements							
P.Wall	67.1						0
Floor	67.7						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1201

Length	Psi-value		
4.11	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.11	0.021	E3	Sill
15.3	0.016	E4	Jamb
7	0.14	E7	Party floor between dwellings (in blocks of flats)
7	0.56	E15	Flat roof with parapet
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.12	E18	Party wall between dwellings
24.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
24.4	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 24 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 25.31
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	153.59	**(P1)**
Transmission heat loss coefficient:	37.2	
Summer heat loss coefficient:	190.75	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05e)	0	1
South (W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	0.85	0.9	1	0.76	**(P8)**
South (W02c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
South (W02c)	0.9 x	6.94	112.21	0.38	0.8	0.76	162.99	
						Total	246.12	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	402	386.21	393.73	
Total summer gains	657.13	632.34	636.57	**(P5)**
Summer gain/loss ratio	3.44	3.31	3.34	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.82	1.82	1.82	
Threshold temperature	21.27	23.04	22.96	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:58

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 67.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 25 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	23.62 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.44 kg/m²	**Fail**

Excess emissions = 3.82 kg/m² (16.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 25 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 15.39
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.75 m

Living area:	28.4 m² (fraction 0.419)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	29.975	9.97	20.01	0.18	0	False	0
Roof	67.7	0	67.7	0.13	0		0
Internal Elements							
Int	115.775						9
Party Elements							
P.Wall	68.75						0
Floor	67.7						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1156			
	Length	**Psi-value**		
	4.785	0.021	E3	Sill

SAP Input

4.785	0.013	E2	Other lintels (including other steel lintels)
12	0.016	E4	Jamb
6.115	0.14	E7	Party floor between dwellings (in blocks of flats)
6.115	0.56	E15	Flat roof with parapet
5.5	0.12	E18	Party wall between dwellings
25	0	P3	Intermediate floor between dwellings (in blocks of flats)
25	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 100.0% In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 145 litres Cylinder insulation: Measured loss, 1.18kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Dual Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None

SAP Input

Assess Zero Carbon Home: No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 25 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 15.39
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	147.45	**(P1)**
Transmission heat loss coefficient:	36	
Summer heat loss coefficient:	183.47	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W05d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	402.13	386.36	393.92	
Total summer gains	644.84	620.5	624.94	**(P5)**
Summer gain/loss ratio	3.51	3.38	3.41	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.41	23.17	23.1	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:30:58

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 66.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E11 26 - Level 11
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.83 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.84 kg/m²	**Fail**

Excess emissions = 4.01 kg/m² (15.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.5 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	**OK**
Openings	1.30 (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	2.50 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric Efficiency 100.0
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	5.27m²
Windows facing: South	4.7m²
Ventilation rate:	2.40
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	2.5 m³/m²h
Party Walls U-value	0 W/m²K

SAP Input

Property Details: E11 26 - Level 11

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	14 October 2019
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 16.81
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	66.7 m²	2.75 m

Living area:	25.6 m² (fraction 0.384)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W05d	16mm or more	0.8	0.38	1.3	5.27	1
W02a	16mm or more	0.8	0.38	1.3	2.35	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	2.55
W02a		Ext	South	1.36	1.725

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	49.5	9.97	39.53	0.18	0	False	0
Roof	66.7	0	66.7	0.13	0		0
Internal Elements							
Int	124.548						9
Party Elements							
P.Wall	46.75						0
Floor	66.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1276

Length	Psi-value		
4.785	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.785	0.021	E3	Sill
12	0.016	E4	Jamb
13.2	0.14	E7	Party floor between dwellings (in blocks of flats)
13.2	0.56	E15	Flat roof with parapet
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
17	0	P3	Intermediate floor between dwellings (in blocks of flats)
17	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery
	Number of wet rooms: Kitchen + 2
	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:	3
Pressure test:	2.5

Main heating system:

Main heating system:	Electric underfloor heating
	Standard tariff
	Fuel: Electricity
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 100.0%
	In screed above insulation
	Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control
	Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak)
	Water code: 903
	Fuel :Electricity
	Hot water cylinder
	Cylinder volume: 145 litres
	Cylinder insulation: Measured loss, 1.18kWh/day
	Primary pipework insulation: False
	Cylinderstat: True
	Cylinder in heated space: True
	Immersion: Dual
	Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No

SAP Input

Photovoltaics:	None
Assess Zero Carbon Home:	No

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: E11 26 - Level 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 16.81
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	145.27	**(P1)**
Transmission heat loss coefficient:	42.9	
Summer heat loss coefficient:	188.21	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0	1
South (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	1	0.76	**(P8)**
South (W02a)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W05d)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (W02a)	0.9 x	4.7	112.21	0.38	0.8	0.76	110.38	
						Total	234.15	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	398.08	382.47	389.96	
Total summer gains	640.79	616.62	620.98	**(P5)**
Summer gain/loss ratio	3.4	3.28	3.3	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.29	23.06	22.98	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 09:58:30

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 48.2m²
Site Reference : Station Hill - Block F **Plot Reference:** F00 01 - Level 0
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	35.16 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	38.83 kg/m²	**Fail**

Excess emissions = 3.67 kg/m² (10.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	67.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	62.7 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	(no floor)		
Roof	(no roof)		
Openings	1.30 (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	3.00 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric In screed above insulation
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.04m²
Windows facing: North	5.19m²
Ventilation rate:	1.40
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	3.0 m³/m²h
Party Walls U-value	0 W/m²K
Photovoltaic array	

SAP Input

Property Details: F00 01 - Level 0

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	08 March 2021
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 238.8
Water use <= 125 litres/person/day:	True
PCDF Version:	492

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	48.2 m²	3.75 m

Living area:	28.7 m² (fraction 0.595)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03b	16mm or more	0.8	0.38	1.3	4.04	1
W04e	16mm or more	0.8	0.38	1.3	5.19	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03b		Ext	North	1.585	2.55
W04e		Ext	North	2.035	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Amenity	32.25	0	32.25	0.18	0.43	False	14
Ext	28.125	9.23	18.89	0.18	0	False	14
Internal Elements							
Int	109.5						9
Party Elements							
P. Wall	56.625						20
P. Ceiling	48.2						100
Floor	48.2						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.225

Length	Psi-value		
3.62	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
12.68	0.14	E7	Party floor between dwellings (in blocks of flats)
3.75	0.12	E18	Party wall between dwellings
12.68	0.32	E20	Exposed floor (normal)
3.75	0.12	E25	Staggered party wall between dwellings
3.62	0.03	E3	Sill
15.1	0.16	P1	Ground floor
15.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3
Pressure test: 3

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: SAP Tables
SAP Table: 424
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Single
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English
Wind turbine: No
Assessed as Zero Carbon Home: No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: F00 01 - Level 0

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 238.8
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	83.51	**(P1)**
Transmission heat loss coefficient:	33.8	
Summer heat loss coefficient:	117.28	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03b)	0	1
North (W04e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03b)	0.85	0.9	1	0.76	**(P8)**
North (W04e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03b)	0.9 x	4.04	81.19	0.38	0.8	0.76	68.65	
North (W04e)	0.9 x	5.19	81.19	0.38	0.8	0.76	88.19	
						Total	156.84	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	318.22	306.01	312.1	
Total summer gains	487.9	462.85	439.62	**(P5)**
Summer gain/loss ratio	4.16	3.95	3.75	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.33	0.33	0.33	
Threshold temperature	20.49	22.17	21.88	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Medium**	**Slight**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 09:58:30

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 68.4m²
Site Reference : Station Hill - Block F **Plot Reference:** F00 02 - Level 0
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29.38 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.13 kg/m²	**Fail**

Excess emissions = 0.75 kg/m² (2.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	58.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	43.7 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	0.05 (max. 0.25)	0.05 (max. 0.70)	**OK**
Roof	(no roof)		
Openings	1.30 (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	3.00 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system: Electric underfloor heating - electric
In screed above insulation

Secondary heating system: None

5 Cylinder insulation

Hot water Storage: Measured cylinder loss: 1.20 kWh/day
Permitted by DBSCG: 2.03 kWh/day **OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	8.08m²
Windows facing: North	6.84m²
Ventilation rate:	1.70
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	3.0 m³/m²h
Party Walls U-value	0 W/m²K
Floors U-value	0.05 W/m²K
Photovoltaic array	

SAP Input

Property Details: F00 02 - Level 0

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	08 March 2021
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 21.73
Water use <= 125 litres/person/day:	True
PCDF Version:	492

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	68.4 m²	3.75 m

Living area:	28.9 m² (fraction 0.423)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03b	16mm or more	0.8	0.38	1.3	4.04	2
W05d	16mm or more	0.8	0.38	1.3	6.84	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03b		Ext	North	1.585	2.55
W05d		Ext	North	2.3725	2.885

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	39.75	14.92	24.83	0.18	0	False	0
Floor	27.9			0.05			0
Internal Elements							
Int	165.128						9
Party Elements							
P. Wall	94.125						0
P. Ceiling	68.4						0
Floor	40.5						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1436

Length	Psi-value		
5.5425	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.97	0.016	E4	Jamb
5.5425	0.021	E3	Sill
5.1	0.14	E7	Party floor between dwellings (in blocks of flats)
3.75	0.12	E18	Party wall between dwellings
3.75	0.12	E25	Staggered party wall between dwellings
5.1	0.32	E20	Exposed floor (normal)
25.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3
Pressure test:	3

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: SAP Tables SAP Table: 424 In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 170 litres Cylinder insulation: Measured loss, 1.2kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Single Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Assessor's Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: F00 02 - Level 0

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 21.73
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	143.9	**(P1)**
Transmission heat loss coefficient:	34	
Summer heat loss coefficient:	177.91	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03b)	0	1
North (W05d)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03b)	0.85	0.9	1	0.76	**(P8)**
North (W05d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03b)	0.9 x	8.08	81.19	0.38	0.8	0.76	137.3	
North (W05d)	0.9 x	6.84	81.19	0.38	0.8	0.76	116.23	
						Total	253.53	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	404.82	388.88	396.33	
Total summer gains	679.1	642.41	602.47	**(P5)**
Summer gain/loss ratio	3.82	3.61	3.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.85	1.85	1.85	
Threshold temperature	21.66	23.36	23.03	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 09:58:30

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 38.7m²
Site Reference : Station Hill - Block F **Plot Reference:** F00 03 - Level 0
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	37.47 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	37.76 kg/m²	**Fail**

Excess emissions = 0.29 kg/m² (0.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	66.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	48.9 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	0.05 (max. 0.25)	0.05 (max. 0.70)	**OK**
Roof	(no roof)		
Openings	1.30 (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	3.00 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric In screed above insulation
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	3.92m²
Windows facing: North	5.87m²
Ventilation rate:	2.00
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	3.0 m³/m²h
Party Walls U-value	0 W/m²K
Floors U-value	0.05 W/m²K
Photovoltaic array	

SAP Input

Property Details: F00 03 - Level 0

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	08 March 2021
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 17.79
Water use <= 125 litres/person/day:	True
PCDF Version:	492

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	38.7 m²	3.75 m

Living area:	28 m² (fraction 0.724)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W02c	16mm or more	0.8	0.38	1.3	3.92	1
W04e	16mm or more	0.8	0.38	1.3	5.87	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02c		Ext	North	1.36	2.885
W04e		Ext	North	2.035	2.885

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	21.75	9.79	11.96	0.18	0	False	0
Floor	38.7			0.05			0
Internal Elements							
Int	76.5						9
Party Elements							
P. Wall	77.25						0
P. Ceiling	38.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.116

Length	Psi-value		
3.395	0.013	E2	Other lintels (including other steel lintels)

SAP Input

3.395	0.021	E3	Sill
11.54	0.016	E4	Jamb
2.41	0.14	E7	Party floor between dwellings (in blocks of flats)
2.41	0.32	E20	Exposed floor (normal)
5.5	0.12	E18	Party wall between dwellings
20.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.6	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
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: 3

Pressure test: 3

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: SAP Tables
SAP Table: 424
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 145 litres
Cylinder insulation: Measured loss, 1.18kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Single
Solar panel: False

Others:

Electricity tariff: Standard Tariff

In Smoke Control Area: Unknown

Conservatory: No conservatory

Low energy lights: 100%

Terrain type: Dense urban

EPC language: English

Wind turbine: No

Assessor's Zero Carbon Home: No

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: F00 03 - Level 0

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 17.79
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	95.78	**(P1)**
Transmission heat loss coefficient:	23.2	
Summer heat loss coefficient:	118.98	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W02c)	0	1
North (W04e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W02c)	0.85	0.9	1	0.76	**(P8)**
North (W04e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W02c)	0.9 x	3.92	81.19	0.38	0.8	0.76	66.61	
North (W04e)	0.9 x	5.87	81.19	0.38	0.8	0.76	99.75	
						Total	166.36	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	277.39	266.94	272.4	
Total summer gains	457.36	433.3	407.66	**(P5)**
Summer gain/loss ratio	3.84	3.64	3.43	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.72	23.42	23.1	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 09:58:30

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 74.4m²

Site Reference : Station Hill - Block F

Plot Reference: F00 04 - Level 0

Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	33.17 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	36.28 kg/m²	**Fail**

Excess emissions = 3.11 kg/m² (9.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	72.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	62.7 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	0.07 (max. 0.25)	0.10 (max. 0.70)	**OK**
Roof	(no roof)		
Openings	1.30 (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	3.00 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric In screed above insulation
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.20 kWh/day	
	Permitted by DBSCG: 2.03 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	8.08m²
Windows facing: North	6.84m²
Ventilation rate:	1.20
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	3.0 m³/m²h
Party Walls U-value	0 W/m²K
Floors U-value	0.05 W/m²K
Floors U-value	0.1 W/m²K
Photovoltaic array	

SAP Input

Property Details: F00 04 - Level 0

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	08 March 2021
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 260.37
Water use <= 125 litres/person/day:	True
PCDF Version:	492

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	74.4 m²	3.75 m

Living area:	30.9 m² (fraction 0.415)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W03b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W03b	16mm or more	0.8	0.38	1.3	4.04	2
W05c	16mm or more	0.8	0.38	1.3	6.84	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03b		Ext	North	1.585	2.55
W05c		Ext	North	2.3725	2.885

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	72.263	14.92	57.34	0.18	0	False	14
Floor	37.3			0.05			110
Floor	37.1			0.1			110
Internal Elements							
Int	168						9
Party Elements							
P. Wall	71.625						20
P. Ceiling	74.4						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.109

Length	Psi-value		
5.5425	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.97	0.016	E4	Jamb
13.77	0.14	E7	Party floor between dwellings (in blocks of flats)
7.5	0.12	E18	Party wall between dwellings
3.75	0.18	E16	Corner (normal)
13.77	0.32	E20	Exposed floor (normal)
5.5425	0.021	E3	Sill
19.1	0.16	P1	Ground floor
19.1	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 2
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: 3

Main heating system:

Main heating system: Electric underfloor heating
Standard tariff
Fuel: Electricity
Info Source: SAP Tables
SAP Table: 424
In screed above insulation
Systems with radiators

DRAFT

Main heating Control:

Main heating Control: Time and temperature zone control
Control code: 2706

Secondary heating system:

Secondary heating system: None

Water heating:

Water heating: Electric immersion (on-peak or off-peak)
Water code: 903
Fuel :Electricity
Hot water cylinder
Cylinder volume: 170 litres
Cylinder insulation: Measured loss, 1.2kWh/day
Primary pipework insulation: False
Cylinderstat: True
Cylinder in heated space: True
Immersion: Single
Solar panel: False

Others:

Electricity tariff: Standard Tariff
In Smoke Control Area: Unknown
Conservatory: No conservatory
Low energy lights: 100%
Terrain type: Dense urban
EPC language: English
Wind turbine: No
Assessed as Zero Carbon Home: No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: F00 04 - Level 0

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 260.37
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	110.48	**(P1)**
Transmission heat loss coefficient:	50.3	
Summer heat loss coefficient:	160.81	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (W03b)	0	1
North (W05c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (W03b)	0.85	0.9	1	0.76	**(P8)**
North (W05c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (W03b)	0.9 x	8.08	81.19	0.38	0.8	0.76	137.3	
North (W05c)	0.9 x	6.84	81.19	0.38	0.8	0.76	116.23	
						Total	253.53	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	427.67	410.74	418.54	
Total summer gains	701.95	664.27	624.67	**(P5)**
Summer gain/loss ratio	4.37	4.13	3.88	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.18	0.18	0.18	
Threshold temperature	20.54	22.21	21.86	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Slight**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 09:58:30

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 73.7m²
Site Reference : Station Hill - Block F **Plot Reference:** F00 05 - Level 0
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	28.89 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.09 kg/m²	**Fail**

Excess emissions = 2.2 kg/m² (7.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	57.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	46.1 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	0.08 (max. 0.25)	0.10 (max. 0.70)	**OK**
Roof	(no roof)		
Openings	1.30 (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	3.00 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric In screed above insulation
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.20 kWh/day	
	Permitted by DBSCG: 2.03 kWh/day	**OK**

Regulations Compliance Report

Primary pipework insulated:	No primary pipework	

6 Controls

Space heating controls	Time and temperature zone control	**OK**
Hot water controls:	Cylinderstat	**OK**

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:	0.61	
Maximum	1.5	**OK**
MVHR efficiency:	89%	
Minimum	70%	**OK**

9 Summertime temperature

Overheating risk (Thames valley):	Medium	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	6.94m²
Windows facing: South	5.19m²
Ventilation rate:	1.60
Blinds/curtains:	Dark-coloured curtain or roller blind
	Closed 100% of daylight hours

DRAFT

10 Key features

Air permeablility	3.0 m³/m²h
Party Walls U-value	0 W/m²K
Floors U-value	0.05 W/m²K
Floors U-value	0.1 W/m²K
Photovoltaic array	

SAP Input

Property Details: F00 05 - Level 0

Address:	
Located in:	England
Region:	Thames valley
UPRN:	
Date of assessment:	08 March 2021
Date of certificate:	01 April 2022
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Unknown
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 20.61
Water use <= 125 litres/person/day:	True
PCDF Version:	492

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	73.7 m²	3.75 m

Living area:	31 m² (fraction 0.421)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W02b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W02b	16mm or more	0.8	0.38	1.3	3.47	2
W04d	16mm or more	0.8	0.38	1.3	5.19	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W02b		Ext	South	1.36	2.55
W04d		Ext	South	2.035	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	69.375	12.13	57.24	0.18	0	False	0
Floor	36.6			0.05			0
Floor	37.1			0.1			0
Internal Elements							
Int	168.75						9
Party Elements							
P. Wall	71.25						0
P. Ceiling	73.7						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0895

Length	Psi-value		
4.755	0.016	E2	Other lintels (including other steel lintels)

SAP Input

4.755	0.021	E3	Sill
15.3	0.013	E4	Jamb
13.7	0.14	E7	Party floor between dwellings (in blocks of flats)
13.7	0.32	E20	Exposed floor (normal)
3.75	0.18	E16	Corner (normal)
7.5	0.12	E18	Party wall between dwellings
19	0	P3	Intermediate floor between dwellings (in blocks of flats)
19	0.24	P4	Roof (insulation at ceiling level)

Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Balanced with heat recovery Number of wet rooms: Kitchen + 2 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:	3

Main heating system:

Main heating system:	Electric underfloor heating Standard tariff Fuel: Electricity Info Source: SAP Tables SAP Table: 424 In screed above insulation Systems with radiators

DRAFT

Main heating Control:

Main heating Control:	Time and temperature zone control Control code: 2706

Secondary heating system:

Secondary heating system:	None

Water heating:

Water heating:	Electric immersion (on-peak or off-peak) Water code: 903 Fuel :Electricity Hot water cylinder Cylinder volume: 170 litres Cylinder insulation: Measured loss, 1.2kWh/day Primary pipework insulation: False Cylinderstat: True Cylinder in heated space: True Immersion: Single Solar panel: False

Others:

Electricity tariff:	Standard Tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Dense urban
EPC language:	English
Wind turbine:	No
Assessor's Zero Carbon Home:	No

SAP Input

DRAFT

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 01 April 2022

Property Details: F00 05 - Level 0

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 20.61
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	145.93	**(P1)**
Transmission heat loss coefficient:	43.6	
Summer heat loss coefficient:	189.57	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W02b)	0	1
South (W04d)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W02b)	0.85	0.9	1	0.76	**(P8)**
South (W04d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (W02b)	0.9 x	6.94	112.21	0.38	0.8	0.76	162.99	
South (W04d)	0.9 x	5.19	112.21	0.38	0.8	0.76	121.89	
						Total	284.88	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	425.33	408.53	416.36	
Total summer gains	720.62	693.4	697.43	**(P5)**
Summer gain/loss ratio	3.8	3.66	3.68	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.86	1.86	1.86	
Threshold temperature	21.66	23.41	23.33	**(P7)**
Likelihood of high internal temperature	**Slight**	**Medium**	**Medium**	

Assessment of likelihood of high internal temperature: Medium

DRAFT

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 09:58:29

Project Information:

Assessed By: () **Building Type:** Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.4m²
Site Reference : Station Hill - Block F **Plot Reference:** F00 06 - Level 0
Address :

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: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	29.28 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.38 kg/m²	**Fail**

Excess emissions = 2.1 kg/m² (7.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.8 kWh/m²	
		OK

DRAFT

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	**OK**
Party wall	0.00 (max. 0.20)	-	**OK**
Floor	0.05 (max. 0.25)	0.05 (max. 0.70)	**OK**
Roof	(no roof)		
Openings	1.30 (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	3.00 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:	Electric underfloor heating - electric In screed above insulation
Secondary heating system:	None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 1.18 kWh/day	
	Permitted by DBSCG: 1.85 kWh/day	**OK**