20.02.2023

Station Hill Reading (Phase 1)

Document Reference: SHR-MDS-ZZ-ZZ-RP-A-91-0001-C01, PART L1A SAP 10 Report, Station Hill - Planning Conditions 54 & 66 Block E & F.

The document referenced above is submitted to Reading Borough Council for approval to

Discharge planning condition Block E OPP 54 & Block F OPP 66 (Dwelling Emission Rates) prior to residential occupation

Planning condition 54 & 60 requires the following:

Block E & F

No residential floor space within the development hereby permitted shall be first-occupied, or part thereof in accordance with a timetable for phased provision where approved in writing by the Local Planning Authority prior to first occupation, until written documentary evidence has been submitted to, and approved in writing by, the Local Planning Authority demonstrating that the floor space has achieved a minimum of a 35% improvement in the dwelling emission rate over the target emission rate, as defined in The Building Regulations for England Approved Document L1A: Conservation of Fuel and Power in New Dwellings (2013 edition) when using "SAP10" carbon factors (0.233kg/kwh). Such evidence shall be in the form of an As Built Standard Assessment Procedure, produced by an accredited energy assessor.

The following report has been prepared to satisfy Plot E Condition 54 and Plot F Condition 66

SHR-MDS-ZZ-ZZ-RP-A-91-0001-C01, PART L1A SAP 10 Report, Station Hill.

This document outlines the assessment has been carried out in accordance with the requirements of Phase 1 Development.

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Part L1A SAP Report

Station Hill, Reading

01/04/2022	01/04/2022
Katarina Berdovic	Andrew Berry
Junior Designer	Head of Sustainability
Prepared By	Checked by

Current version

Revision	Date	Notes
C01	01/04/2022	First issue for comment.

Version history

Revision	Date	Notes

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1.0 Introduction

This following document provides a summary of the design stage Part L1A 2013 SAP calculations that have been carried out on the residential dwellings within the Station Hill project. The mixed use project will consist of 2No Blocks containing residential apartments, hotel facilities, retail space and a school. The development comprises of an 11-storey high residential block (Block E) and a 12-storey high residential block (Block F).

1.1 Planning and Building Regulations

The consented Energy Strategy for the Station Hill development is subject to a range of requirements to demonstrate compliance with building regulations and Reading Borough Council planning targets.

1.1.1 Planning requirements

Building Regulation (Part L)

All new buildings constructed in the UK must meet the minimum requirements of the UK Buildings Regulations. Specifically, with regards to energy and carbon compliance, all buildings must meet the Building Regulations Part L 'Target Emission Rate' (TER) requirements for the Part L revision which is current at the time of initial construction works for each particular developmental phase.

For the residential element of the site (through a Design Stage Standard Assessment Procedure (SAP) Assessment), all approved dwellings within the site shall achieve a minimum of a 35% improvement in the dwelling emission rate over the target emission rate, as defined in The Building Regulations for England Approved Document L1A: Conservation of Fuel and Power in New Dwellings (2013 edition) when using "SAP10" carbon factors (0.233kg/kwh).

The residential elements have maximised efforts to reach targets set out by Reading Borough Council and achieve a high performance. The required commitment set by Part L1A of UK Building Regulation is to reduce CO_2 emissions by at least 50% by 2025. Additionally, there is a 100% net zero carbon target by 2050.

SAP 10 Carbon Emission Factors

By undertaking an assessment using the SAP 10 carbon factors, the assessment of new developments better reflects the actual carbon emissions associated with their expected operation.

The newly released SAP 10.0 (July 2018) carbon factors for both grid supplied electricity and natural gas are presented in comparison with SAP 2012 in Table 2 below.

Fuel type	SAP 2012 ($kgCO_2$/KWH)	SAP 10.0 ($kgCO_2$/KWH)
Grid supplied electricity	0.519	0.233
Natural gas	0.216	0.210

Table 1 – Carbon factors for both grid supplied electricity and natural gas.

Overall, the current proposal is shown to achieve a carbon reduction of 51.89% for Block E and 51.39% for Block F.

2.0 Residential Design Parameters

Table 2 and 3 present a summary of the parameters used within the SAP calculations.

2.1 Building Fabric

U-Values (W/m^{2}K)	Domestic (Block E)	Domestic (Block F)
Thermal Mass Parameter	Medium	Low
External Wall	0.18	0.18
Heat loss floors	0.10	0.10
Party wall between apartments/corridors	Fully filled cavity with sealed edges	Fully filled cavity with sealed edges
Glazing U-value	Weighted average Uw=1.3	Weighted average Uw=1.3
Glazing G-Value	G=0.37-0.38	G=0.37-0.38
Heat loss roof	0.13	0.13
Design Air Permeability Rate	3 m^3/hm^2 (@50Pa)	3 m^3/hm^2 (@50Pa)

Table 2 – Input design parameters for SAP assessment – Building fabric.

Corridors have been designed to include fixed heaters, therefore, the walls to corridor, lift shaft, stair cases and risers were treated as party walls in the SAP models.

2.2 Building Construction

For the calculated thermal mass parameter in SAP, the following construction details have been inputted.

Ground floor	Slab on ground, screed over insulation
External walls	Steel frame wall (warm frame or hybrid construction)
Roof	Plasterboard, insulated flat roof
Party walls – to Dwellings	Double plasterboard on both sides, twin timber frame with/without sheathing board.
Party walls – to Corridor	Double plasterboard on both sides, twin timber frame with/without sheathing board.
Party ceilings	Concrete floor slab, carpeted
Party Floor	Concrete floor slab, carpeted
Internal partitions (walls within a dwelling)	Plasterboard on timber frame

Table 3 – Input constructions for SAP assessment.

2.3 Building Services

Station Hill – Building Services		
System	**Specification Domestic (Block E)**	**Specification Domestic (Block F)**
Heating	System with radiators	System with radiators
Water heating	Electric immersion - Cylinder in dwelling 1 Bedroom -145L Loss factor - 1.18 2 Bedrooms - 170L Loss factor - 1.2 3 Bedrooms - 210L Loss factor - 1.42 Duplex - 250L Loss factor - 1.61	Electric immersion - Cylinder in dwelling 1 Bedroom -145L Loss factor - 1.18 2 Bedrooms - 170L Loss factor - 1.2 3 Bedrooms - 210L Loss factor - 1.42 Duplex - 250L Loss factor - 1.61
Cooling	No cooling	No cooling
Lighting	100% low energy light fittings	100% low energy light fittings
Ventilation	MVHR - Nuaire ECO Units	MVHR - Nuaire ECO Units
PV	Installed capacity 30kWp	N/A

Table 4 – Input design parameters for SAP assessment – Building services.

3.0 Results

The following tables outline the Block E and Block F SAP10 performance with the specified design parameters outlined within Section 2.

3.1 As Designed Performance

3.1.1 Block E

Block E – 29 Dwellings Modelled						
Dwelling	**Total Floor Area (m^2)**	**DER ($kgCO2/m^2$)**	**TER ($kgCO2/m^2$)**	**DFEE (kWh/m^2)**	**TFEE (kWh/m^2)**	**% Improvement**
E 00 03 Level 0	43.6	16.28	31.28	58	62.1	47.94
E 00 07 Level 0	51	13.95	28.93	50.8	58.2	51.77
E 00 12 Level 0	71	14.95	28.89	58.8	65.4	48.25
E 00 17 - Level 0	85	12.63	25.08	51.2	55.2	49.66
E 00 23 - Level 0	40.3	15.63	31.60	54	60.6	50.54
E 01 01 - Level 1	38.3	14.86	31.32	47.3	55.6	52.54
E01 08 - Level 1	51.1	12.01	25.46	38.9	46.2	52.81
E01 15 - Level 1	69	9.84	20.98	32.1	37.3	53.08
E01 34 - Level 1	85	8.79	18.39	30.9	32.4	52.18
E02 04 - Level 2	67.5	11.32	21.00	32.1	36.9	46.08
E02 20 - Level 2	49.8	11.68	20.33	29	26	42.54
E02 32 - Level 2	82.7	11.47	19.46	37	37.6	41.04
E03 02 - Level 3	41.9	13.78	25.27	35.2	39	45.49

E03 10 - Level 3	67.7	10.65	18.23	28.9	26.5	41.57
E03 19 - Level 3	80.8	11.18	19.11	35.3	35.8	41.51
E03 28 - Level 3	68.5	10.65	17.90	29.5	26.1	40.49
E03 38 - Level 3	54.6	12.58	23.26	34.6	40	45.93
E05 04 - Level 5	67.5	11.04	20.72	31	35.9	46.73
E05 11 - Level 5	50.12	12.54	22.22	33.4	34.3	43.56
E05 18 - Level 5	81.4	11.37	21.08	35.7	42.1	46.04
E05 30 - Level 5	42	13.26	22.42	33	28	40.85
E05 34 - Level 5	54.6	12.55	23.11	34.2	39.3	45.70
E05 40 - Level 5	72.3	10.75	19.23	32.7	32.2	44.09
E11 02 - Level 11	43.3	14.53	24.77	39	37.8	41.34
E11 06 - Level 11	83.5	14.69	26.07	50.1	59.8	43.63
E11 12 - Level 11	38.8	15.76	28.91	41.4	47.5	45.49
E11 19 - Level 11	67.5	13.03	24.50	39.2	48.9	46.79
E11 23 - Level 11	43.6	15.13	26.09	41.6	42.6	42.00
E11 26 - Level 11	66.7	13.40	23.52	40.5	45	43.03

Table 5 – Individual Dwelling Compliance for Block E.

Block E- 29 Dwellings Modelled Total floor area 1759.12 (m²)	
Average TER (kg/m²)	23.76
Average DER(kg/m²)	12.77
Average DFEE (kWh/m²)	39.15
Average TFEE (kWh/m²)	42.56
Compliance	**Pass**
% Improvement DER/TER	**45.95**
% Improvement DFEE/TFEE	**8.00**

Table 6 – Extracted from Block Compliance report for Block E.

3.1.2 Block F

Block F- 30 Dwellings Modelled						
Dwelling	**Total Floor Area (m^2)**	**DER ($kgCO2/m^2$)**	**TER ($kgCO2/m^2$)**	**DFEE (kWh/m^2)**	**TFEE (kWh/m^2)**	**% Improvement**
F00 01 - Level 0	48.2	17.43	32.48	62.7	67.9	46.34
F00 04 - Level 0	74.4	16.29	30.77	62.7	72.6	47.07
F00 07 - Level 0	53.4	14.37	27.40	51.3	52.9	47.56
F01 02 - Level 1	80	12.92	25.23	46.1	55.7	48.82
F01 05 - Level 1	38.8	13.75	27.48	40.5	43.3	49.97
F01 09 - Level 1	53.4	10.28	19.99	28.8	27.1	48.58
F02 01 - Level 1	50.4	11.16	21.96	32.7	33.6	49.16
F02 04 - Level 2	68.4	10.96	20.38	35.6	39	46.25
F02 10 - Level 2	58.5	11.38	22.81	35.4	40.1	50.10
F02 14 - Level 2	44	11.82	23.79	33.4	36.4	50.34
F05 02 - Level 5	80	11.77	21.88	41.1	44.5	46.22
F05 08 - Level 5	51.4	10.24	20.18	28	26.5	49.25
F05 12 - Level 5	37	13.78	26.82	39.5	40	48.60
F05 15 - Level 5	43.3	12.14	23.91	34.6	36.4	49.25
F06 01 - Level 6	50.4	11.67	22.32	35	34.9	47.72
F06 06 - Level 6	74.4	11.79	22.61	40.4	44.5	47.86
F06 10 - Level 6	58.5	12.05	22.68	38.2	39.3	46.85
F06 13 - Level 6	43.3	12.15	23.96	34.6	36.5	49.30
F07 03 - Level 7	67.9	11.15	21.54	36.4	38.8	48.24
F07 08 - Level 7	51.4	10.76	20.56	30.6	27.9	47.67
F07 12 - Level 7	37	13.10	26.79	36.4	39.9	51.12
F07 15 - Level 7	43.3	11.98	23.73	33.8	35.5	49.53
F11 03 - Level 11	67.9	10.91	21.54	35.3	38.8	49.36
F11 08 - Level 11	51.4	10.26	20.20	28.1	26.6	49.18
F11 11 - Level 11	82.2	14.69	26.67	51.3	60	44.94
F11 14 - Level 11	44	14.29	26.74	42.8	46.4	46.57
F12 01 - Level 12	67.9	14.83	27.12	50.1	57.9	45.31
F12 03 - Level 12	38.8	15.89	30.61	47.7	53.5	48.09
F12 05 - Level 12	73.7	12.99	23.43	43.3	46.4	44.58
F12 07 - Level 12	53.4	12.67	23.26	38.2	38.4	45.52

Table 7 – Individual Dwelling Compliance for Block F.

Block F- 30 Dwellings Modelled Total floor area 1686.7 (m²)	
Average TER (kg/m²)	24.30
Average DER(kg/m²)	12.65
Average DFEE (kWh/m²)	39.82
Average TFEE (kWh/m²)	42.71
Compliance	**Pass**
% Improvement DER/TER	**47.98**
% Improvement DFEE/TFEE	**6.77**

Table 8 – Extracted from Compliance report for Block F.

It can be seen from Table 6 and 8 in Section 3 that Block E and Block F comply with the first two criterions of Part L 2013 Building Regulations.

Please refer to Appendix B for each dwelling's input datasheet.

3.2 Criterion 3 – Overheating Performance

Both Block E and Block F have been designed with the intent that they will have a closed window strategy. A TM59 overheating assessment is being carried out by MDS to confirm there is no risk of overheating and illustrate compliance with Criterion 3 of Part L.

Reference should be made to the TM59 assessment for overheating risk.

3.2.1 Block E

Dwelling	Air Change Rate / Window Opening Strategy (Criterion 3)	Criterion 3 Overheating Risk
E 00 03 Level 0	1.9	Medium
E 00 07 Level 0	2.0	Medium
E 00 12 Level 0	1.2	Medium
E 00 17 - Level 0	1.1	Medium
E 00 23 - Level 0	2.0	Medium
E 01 01 - Level 1	2.1	Medium
E01 08 - Level 1	2.1	Medium
E01 15 - Level 1	1.8	Medium
E01 34 - Level 1	1.7	Medium
E02 04 - Level 2	2.1	Medium
E02 20 - Level 2	2.5	Medium
E02 32 - Level 2	3.1	Medium
E03 02 - Level 3	2.5	Medium
E03 10 - Level 3	2.2	Medium
E03 19 - Level 3	3.2	Medium
E03 28 - Level 3	2.4	Medium
E03 38 - Level 3	2.5	Medium
E05 04 - Level 5	2.4	Medium
E05 11 - Level 5	2.8	Medium
E05 18 - Level 5	2.4	Medium
E05 30 - Level 5	2.7	Medium
E05 34 - Level 5	2.4	Medium

E05 40 - Level 5	2.4	Medium
E11 02 - Level 11	2.7	Medium
E11 06 - Level 11	2.8	Medium
E11 12 - Level 11	2.6	Medium
E11 19 - Level 11	2.5	Medium
E11 23 - Level 11	2.5	Medium
E11 26 - Level 11	2.4	Medium

Table 8 – Overheating Assessment Compliance summary for Block E.

3.2.2 Block F

Dwelling	Air Change Rate / Window Opening Strategy (Criterion 3)	Criterion 3 Overheating Risk
F00 01 - Level 0	1.4	Medium
F00 04 - Level 0	1.2	Medium
F00 07 - Level 0	1.5	Medium
F01 02 - Level 1	1.6	Medium
F01 05 - Level 1	2.6	Medium
F01 09 - Level 1	2.4	Medium
F02 01 - Level 1	2.6	Medium
F02 04 - Level 2	2.1	Medium
F02 10 - Level 2	2.2	Medium
F02 14 - Level 2	2.9	Medium
F05 02 - Level 5	2.4	Medium
F05 08 - Level 5	2.3	Medium
F05 12 - Level 5	3.2	Medium
F05 15 - Level 5	3.0	Medium
F06 01 - Level 6	2.6	Medium
F06 06 - Level 6	2.0	Medium
F06 10 - Level 6	2.1	Medium
F06 13 - Level 6	3.0	Medium

F07 03 - Level 7	2.1	Medium
F07 08 - Level 7	2.3	Medium
F07 12 - Level 7	3.2	Medium
F07 15 - Level 7	2.8	Medium
F11 03 - Level 11	2.1	Medium
F11 08 - Level 11	2.3	Medium
F11 11 - Level 11	1.6	Medium
F11 14 - Level 11	2.5	Medium
F12 01 - Level 12	1.7	Medium
F12 03 - Level 12	2.2	Medium
F12 05 - Level 12	1.8	Medium
F12 07 - Level 12	2.0	Medium

Table 9 - Overheating Assessment Compliance summary for Block F.

4.0 Conclusion

The new build residential elements of Block E and Block F comply with the policies and planning targets set out in Section 1. The SAP2012 and SAP10 improvements meet the mandatory targets.

The SAP10 results show compliance with Planning requirements, achieving an average site carbon reduction of 46.97%.

Building	% Improvement DER/TER SAP 2012	% Improvement DER/TER SAP 10
Block E	-10.04	45.95
Block F	-12.90	47.98
Average	-11.47	46.97

Table 10 - Comparison between SAP 2012 % improvement DER/TER and SAP 10 % improvement DER/TER.

Overall, the Block E and Block F Part L1A analysis carried out and published in this report demonstrates compliance with Part L1A Building Regulations utilising SAP10 carbon factors.

This report has stated that Part L1A Building Regulations have been satisfied. This is based on Socotec Building Control approval in the use of SAP 10 carbon factors to demonstrate compliance. Please see a copy of the approval in Appendix A.

5.0 Appendices

5.1 Appendix A – Building Control SAP 10 Approval Notice

Dear Giten and Harry

Having verbally accepted this with Harry, and also since discussed with my manager, we will accept the SAP 10 in accordance with your planning consent.

This will be reflected in the next issue of the Building control Tracker

Kind regards

Alison Morse BSc (Hons) C.BuildE MCABE
Senior Building Control Project Manager
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5.2 Appendix B - SAP Datasheets

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 10:33:04

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 53.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 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)	30.98 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.11 kg/m²	**Fail**

Excess emissions = 1.13 kg/m² (3.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	58.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	52.0 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	0.10 (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
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	5m²
Windows facing: East	9.46m²
Ventilation rate:	1.90
Blinds/curtains:	Dark-coloured curtain or roller blind Closed 100% of daylight hours

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10 Key features

Air permeablility	3.0 m³/m²h
Party Walls U-value	0 W/m²K
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 01 - Level 0

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 259.93
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	53.3 m²	3.775 m

Living area:	32.5 m² (fraction 0.61)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W02F	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W06E-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W02F	16mm or more	0.8	0.38	1.3	5	1
E-W06E-G	16mm or more	0.8	0.38	1.3	9.46	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W02F		Ext	East	1.39	3.6
E-W06E-G		Ext	East	2.628	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	26.048	14.46	11.59	0.18	0	False	14
Floor	53.3			0.1			110
Internal Elements							
Int	90.6						9
Party Elements							
P.Wall	84.183						20
P. Ceiling	53.3						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0897

Length	**Psi-value**		
4.018	0.013	E2	Other lintels (including other steel lintels)

SAP Input

2.882	0.14	E7	Party floor between dwellings (in blocks of flats)
15.1	0.12	E18	Party wall between dwellings
14.4	0.016	E4	Jamb
2.882	0.32	E20	Exposed floor (normal)
4.018	0.021	E3	Sill
22.6	0.16	P1	Ground floor
22.6	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: 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: E00 01 - Level 0

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 259.93
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:	126.16	**(P1)**
Transmission heat loss coefficient:	32.4	
Summer heat loss coefficient:	158.56	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W02F)	0	1
East (E-W06E-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W02F)	0.85	0.9	1	0.76	**(P8)**
East (E-W06E-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W02F)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
East (E-W06E-G)	0.9 x	9.46	117.51	0.38	0.8	0.76	232.67	
						Total	355.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	340.68	327.5	333.95	
Total summer gains	718.2	683.14	646.83	**(P5)**
Summer gain/loss ratio	4.53	4.31	4.08	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.18	0.18	0.18	
Threshold temperature	20.71	22.39	22.06	**(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 10:33:04

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 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)	31.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.55 kg/m²	**Fail**

Excess emissions = 0.25 kg/m² (0.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	58.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	51.7 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	0.10 (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	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	9.46m²
Windows facing: East	5m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 02 - Level 0

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 263.19
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	51.7 m²	3.775 m

Living area:	29.3 m² (fraction 0.567)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W06E_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02F_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06E_G	16mm or more	0.8	0.38	1.3	9.46	1
E-W02F_G	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06E_G		Ext	East	2.628	3.6
E-W02F_G		Ext	East	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	28.69	14.46	14.23	0.18	0	False	14
Floor	51.7			0.1			110
Internal Elements							
Int	91.306						9
Party Elements							
P.Wall	86.448						20
P. Ceiling	51.7						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0809

Length	**Psi-value**		
4.018	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
3.582	0.32	E20	Exposed floor (normal)
3.582	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
4.018	0.021	E3	Sill
22.4	0.16	P1	Ground floor
22.4	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 02 - Level 0

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 263.19
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:	128.81	**(P1)**
Transmission heat loss coefficient:	32.1	
Summer heat loss coefficient:	160.92	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06E_G)	0	1
East (E-W02F_G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W06E_G)	0.85	0.9	1	0.76	**(P8)**
East (E-W02F_G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06E_G)	0.9 x	9.46	117.51	0.38	0.8	0.76	232.67	
East (E-W02F_G)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
						Total	355.64	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	333.64	320.76	327.09	
Total summer gains	711.16	676.4	639.97	**(P5)**
Summer gain/loss ratio	4.42	4.2	3.98	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.16	0.16	0.16	
Threshold temperature	20.58	22.26	21.93	**(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 10:33:04

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:** E00 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)	33.97 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	36.27 kg/m²	**Fail**

Excess emissions = 2.3 kg/m² (6.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	62.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	58.1 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	0.10 (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	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	6.22m²
Windows facing: East	5m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 03 - Level 0

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 274.33
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	3.775 m

Living area:	22.7 m² (fraction 0.521)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04F_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02F	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04F_G	16mm or more	0.8	0.38	1.3	6.22	1
E-W02F	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04F_G		Ext	East	1.728	3.6
E-W02F		Ext	East	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.16	11.22	12.94	0.18	0	False	14
Floor	43.6			0.1			110
Internal Elements							
Int	99.66						9
Party Elements							
P.Wall	86.335						20
P. Ceiling	43.6						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1681

Length	**Psi-value**		
3.118	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
3.282	0.32	E20	Exposed floor (normal)
3.282	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
3.118	0.021	E3	Sill
21.6	0.24	P4	Roof (insulation at ceiling level)
21.6	0.16	P1	Ground floor

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: E00 03 - Level 0

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 274.33
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:	103.2	**(P1)**
Transmission heat loss coefficient:	31.9	
Summer heat loss coefficient:	135.14	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W04F_G)	0	1
East (E-W02F)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W04F_G)	0.85	0.9	1	0.76	**(P8)**
East (E-W02F)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W04F_G)	0.9 x	6.22	117.51	0.38	0.8	0.76	152.98	
East (E-W02F)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
						Total	275.95	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.14	286.8	292.57	
Total summer gains	591.07	562.75	535.34	**(P5)**
Summer gain/loss ratio	4.37	4.16	3.96	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.08	0.08	0.08	
Threshold temperature	20.45	22.14	21.84	**(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 10:33:04

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 68.2m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 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)	26.04 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.19 kg/m²	**Fail**

Excess emissions = 0.15 kg/m² (0.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	47.6 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	0.10 (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	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):	Slight	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: South	7.43m²
Windows facing: South	5m²
Windows facing: South	5.81m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 04 - Level 0

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 265.46
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	68.2 m²	3.775 m

Living area:	27.7 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W05I_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02F-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W03g_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05I_G	16mm or more	0.8	0.38	1.3	7.43	1
E-W02F-G	16mm or more	0.8	0.38	1.3	5	1
E-W03g_G	16mm or more	0.8	0.38	1.3	5.81	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05I_G		Ext	South	2.065	3.6
E-W02F-G		Ext	South	1.39	3.6
E-W03g_G		Ext	South	1.615	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	37.75	18.24	19.51	0.18	0	False	14
Floor	68.2			0.1			110
Internal Elements							
Int	180.181						9
Party Elements							
P.Wall	94.375						20
P. Ceiling	68.2						100

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0721

Length	Psi-value		
5.07	0.013	E2	Other lintels (including other steel lintels)
21.6	0.016	E4	Jamb
4.93	0.32	E20	Exposed floor (normal)
4.93	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E25	Staggered party wall between dwellings
3.775	0.12	E18	Party wall between dwellings
5.07	0.021	E3	Sill
24.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
24.7	0.16	P1	Ground floor

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: E00 04 - 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 265.46
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:	169.92	**(P1)**
Transmission heat loss coefficient:	40.5	
Summer heat loss coefficient:	210.44	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W05I_G)	0	1
South (E-W02F-G)	0	1
South (E-W03g_G)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W05I_G)	0.85	0.9	1	0.76	**(P8)**
South (E-W02F-G)	0.85	0.9	1	0.76	**(P8)**
South (E-W03g_G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05I_G)	0.9 x	7.43	112.21	0.38	0.8	0.76	174.49	
South (E-W02F-G)	0.9 x	5	112.21	0.38	0.8	0.76	117.43	
South (E-W03g_G)	0.9 x	5.81	112.21	0.38	0.8	0.76	136.45	
						Total	428.37	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	403.63	387.72	395.16	
Total summer gains	847.67	816.09	817.81	**(P5)**
Summer gain/loss ratio	4.03	3.88	3.89	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.14	0.14	0.14	
Threshold temperature	20.17	21.92	21.83	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Slight**	**Slight**	

Assessment of likelihood of high internal temperature: Slight

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:33:04

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: E00 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)	30.32 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.74 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	48.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	44.7 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	0.10 (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	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:	0.63	
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	5m²
Windows facing: South	5.81m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 05 - Level 0

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 269.51
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	43.4 m²	3.775 m

Living area:	23.2 m² (fraction 0.535)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04f_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W03g_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04f_G	16mm or more	0.8	0.38	1.3	5	1
E-W03g_G	16mm or more	0.8	0.38	1.3	5.81	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04f_G		Ext	South	1.39	3.6
E-W03g_G		Ext	South	1.615	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.16	10.81	13.35	0.18	0	False	14
Floor	43.4			0.1			110
Internal Elements							
Int	84.183						9
Party Elements							
P.Wall	81.918						20
P. Ceiling	43.4						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0926

Length	**Psi-value**		
3.005	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
3.395	0.32	E20	Exposed floor (normal)
3.395	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
3.005	0.021	E3	Sill
21.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.6	0.16	P1	Ground floor

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: E00 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 269.51
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:	108.13	**(P1)**
Transmission heat loss coefficient:	26.4	
Summer heat loss coefficient:	134.49	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W04f_G)	0	1
South (E-W03g_G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W04f_G)	0.85	0.9	1	0.76	**(P8)**
South (E-W03g_G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W04f_G)	0.9 x	5	112.21	0.38	0.8	0.76	117.43	
South (E-W03g_G)	0.9 x	5.81	112.21	0.38	0.8	0.76	136.45	
						Total	253.87	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	297.27	285.97	291.73	
Total summer gains	560.44	539.85	542.21	**(P5)**
Summer gain/loss ratio	4.17	4.01	4.03	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.11	0.11	0.11	
Threshold temperature	20.28	22.03	21.95	**(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 10:33:03

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: E00 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)	30.63 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.13 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	48.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	44.7 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	0.10 (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	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:	0.63	
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	6.22m²
Windows facing: South	5m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 06 - Level 0

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 268.91
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	42 m²	3.775 m

Living area:	21.3 m² (fraction 0.507)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04f_G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04f_G	16mm or more	0.8	0.38	1.3	6.22	1
E-W02f-G	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04f_G		Ext	South	1.728	3.6
E-W02f-G		Ext	South	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.783	11.22	12.56	0.18	0	False	14
Floor	42			0.1			110
Internal Elements							
Int	78.37						9
Party Elements							
P.Wall	79.653						20
P. Ceiling	42						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0925

Length	**Psi-value**		
3.118	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
3.182	0.32	E20	Exposed floor (normal)
3.182	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
3.118	0.021	E3	Sill
21.1	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.1	0.16	P1	Ground floor

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: E00 06 - 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 268.91
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:	104.64	**(P1)**
Transmission heat loss coefficient:	26.4	
Summer heat loss coefficient:	131.05	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W04f_G)	0	1
South (E-W02f-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W04f_G)	0.85	0.9	1	0.76	**(P8)**
South (E-W02f-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W04f_G)	0.9 x	6.22	112.21	0.38	0.8	0.76	146.08	
South (E-W02f-G)	0.9 x	5	112.21	0.38	0.8	0.76	117.43	
						Total	263.5	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	291.27	280.23	285.89	
Total summer gains	564.41	543.73	545.87	**(P5)**
Summer gain/loss ratio	4.31	4.15	4.17	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.12	0.12	0.12	
Threshold temperature	20.42	22.17	22.08	**(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 10:33:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 51m²

Site Reference : Station Hill - Block E

Plot Reference: E00 07 - 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)	31.46 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.08 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	58.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	50.8 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	0.10 (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	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:	0.63	
Maximum	1.5	**OK**
MVHR efficiency:	90%	
Minimum	70%	**OK**

9 Summertime temperature

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

Based on:

Overshading:	Average or unknown
Windows facing: West	6.22m²
Windows facing: West	5m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 07 - Level 0

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 264.77
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	51 m²	3.775 m

Living area:	29.3 m² (fraction 0.575)
Front of dwelling faces:	East

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04f-G	16mm or more	0.8	0.38	1.3	6.22	1
E-W02f-G	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04f-G		Ext	West	1.728	3.6
E-W02f-G		Ext	West	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	29.068	11.22	17.85	0.18	0	False	14
Floor	51			0.1			110
Internal Elements							
Int	95.508						9
Party Elements							
P.Wall	84.183						20
P. Ceiling	51						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0864

Length	**Psi-value**		
3.118	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
4.582	0.32	E20	Exposed floor (normal)
4.582	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
3.118	0.021	E3	Sill
22.3	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.3	0.16	P1	Ground floor

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: E00 07 - Level 0

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 264.77
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:	127.07	**(P1)**
Transmission heat loss coefficient:	29.1	
Summer heat loss coefficient:	156.16	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (E-W04f-G)	0	1
West (E-W02f-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (E-W04f-G)	0.85	0.9	1	0.76	**(P8)**
West (E-W02f-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (E-W04f-G)	0.9 x	6.22	117.51	0.38	0.8	0.76	152.98	
West (E-W02f-G)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
						Total	275.95	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	330.55	317.81	324.09	
Total summer gains	623.48	593.76	566.87	**(P5)**
Summer gain/loss ratio	3.99	3.8	3.63	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.15	0.15	0.15	
Threshold temperature	20.14	21.85	21.58	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Slight**	**Slight**	

Assessment of likelihood of high internal temperature: Slight

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 10:33:03

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: E00 08 - 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)	35.21 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.64 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	60.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	54.2 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	0.10 (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	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:	0.63	
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	6.22m²
Windows facing: West	5m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 08 - Level 0

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 272.91
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	40 m²	3.775 m

Living area:	29 m² (fraction 0.725)
Front of dwelling faces:	East

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04f-G	16mm or more	0.8	0.38	1.3	6.22	1
E-W02f-G	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04f-G		Ext	West	1.728	3.6
E-W02f-G		Ext	West	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.538	11.22	13.32	0.18	0	False	14
Floor	40			0.1			110
Internal Elements							
Int	84.409						9
Party Elements							
P.Wall	78.52						20
P. Ceiling	40						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0942

Length	**Psi-value**		
3.118	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
3.382	0.14	E7	Party floor between dwellings (in blocks of flats)
3.382	0.32	E20	Exposed floor (normal)
7.55	0.12	E18	Party wall between dwellings
3.118	0.021	E3	Sill
20.5	0.16	P1	Ground floor
20.5	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 08 - Level 0

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 272.91
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:	104.64	**(P1)**
Transmission heat loss coefficient:	26.3	
Summer heat loss coefficient:	130.98	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (E-W04f-G)	0	1
West (E-W02f-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (E-W04f-G)	0.85	0.9	1	0.76	**(P8)**
West (E-W02f-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (E-W04f-G)	0.9 x	6.22	117.51	0.38	0.8	0.76	152.98	
West (E-W02f-G)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
						Total	275.95	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	282.8	272.13	277.66	
Total summer gains	575.73	548.08	520.44	**(P5)**
Summer gain/loss ratio	4.4	4.18	3.97	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.09	0.09	0.09	
Threshold temperature	20.49	22.17	21.86	**(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 10:33:03

Project Information:

Assessed By: ()
Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE
Total Floor Area: 38.9m²
Site Reference : Station Hill - Block E
Plot Reference: E00 09 - 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)	35.5 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	35.02 kg/m²	OK

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	61.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	54.7 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	0.10 (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	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:	0.63	
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	6.22m²
Windows facing: West	5m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 09 - Level 0

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 272.82
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	38.9 m²	3.775 m

Living area:	32.2 m² (fraction 0.828)
Front of dwelling faces:	East

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04f*-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04f*-G	16mm or more	0.8	0.38	1.3	6.22	1
E-W02f-G	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04f*-G		Ext	West	1.728	3.6
E-W02f-G		Ext	West	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	22.65	11.22	11.43	0.18	0	False	14
Floor	38.9			0.1			110
Internal Elements							
Int	79.237						9
Party Elements							
P.Wall	78.52						20
P. Ceiling	38.9						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0958

Length	**Psi-value**		
3.118	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
2.882	0.32	E20	Exposed floor (normal)
2.882	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
3.118	0.021	E3	Sill
20.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.8	0.16	P1	Ground floor

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: E00 09 - Level 0

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 272.82
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:	101.77	**(P1)**
Transmission heat loss coefficient:	25.7	
Summer heat loss coefficient:	127.47	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
West (E-W04f*-G)	0	1
West (E-W02f-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
West (E-W04f*-G)	0.85	0.9	1	0.76	**(P8)**
West (E-W02f-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (E-W04f*-G)	0.9 x	6.22	117.51	0.38	0.8	0.76	152.98	
West (E-W02f-G)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
						Total	275.95	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	278.21	267.74	273.2	
Total summer gains	571.15	543.69	515.98	**(P5)**
Summer gain/loss ratio	4.48	4.27	4.05	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.09	0.09	0.09	
Threshold temperature	20.57	22.26	21.94	**(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 10:33:03

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 54.3m²

Site Reference : Station Hill - Block E

Plot Reference: E00 10 - 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)	35.05 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	36.64 kg/m²	**Fail**

Excess emissions = 1.59 kg/m² (4.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	71.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	62.1 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	0.10 (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	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):	Slight	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	6.7m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 10 - Level 0

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 269.86
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	54.3 m²	3.775 m

Living area:	31.7 m² (fraction 0.584)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W03d-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W06c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W03d-G	16mm or more	0.8	0.38	1.3	4.12	1
E-W06c-G	16mm or more	0.8	0.38	1.3	6.7	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W03d-G		Ext	North	1.615	2.55
E-W06c-G		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	32.843	10.82	22.02	0.18	0	False	14
Commercial	22.65	0	22.65	0.18	0.43	False	14
Floor	54.3			0.1			110
Internal Elements							
Int	92.828						9
Party Elements							
P.Wall	89.468						20
P. Ceiling	54.3						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0945

Length	**Psi-value**		
4.243	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
10.457	0.32	E20	Exposed floor (normal)
10.457	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
4.243	0.03	E3	Sill
23.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.7	0.16	P1	Ground floor

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: E00 10 - 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 269.86
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:	135.29	**(P1)**
Transmission heat loss coefficient:	36.9	
Summer heat loss coefficient:	172.22	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W03d-G)	0	1
North (E-W06c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W03d-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W06c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W03d-G)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (E-W06c-G)	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	345.07	331.71	338.22	
Total summer gains	543.99	515.56	487.71	**(P5)**
Summer gain/loss ratio	3.16	2.99	2.83	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.11	0.11	0.11	
Threshold temperature	19.27	21	20.74	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Slight**	**Slight**	

Assessment of likelihood of high internal temperature: Slight

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 10:31:33

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 51.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 11 - 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)	33.69 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	35.35 kg/m²	**Fail**

Excess emissions = 1.66 kg/m² (4.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	65.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	59.2 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	0.10 (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	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):	Slight	**OK**

Based on:

Overshading:	Average or unknown
Windows facing: North	4.12m²
Windows facing: North	7.14m²
Windows facing: East	3.57m²
Ventilation rate:	1.80
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 11 - Level 0

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 271.83
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	51.9 m²	3.775 m

Living area:	30.4 m² (fraction 0.586)
Front of dwelling faces:	South

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W03d-G	16mm or more	0.8	0.38	1.3	4.12	1
E-W08f-G	16mm or more	0.8	0.38	1.3	7.14	1
E-W08f-G	16mm or more	0.8	0.38	1.3	3.57	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W03d-G		Ext	North	1.615	2.55
E-W08f-G		Ext	North	2.8	2.55
E-W08f-G		Ext	East	1.4	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	37.75	14.83	22.92	0.18	0	False	14
Floor	51.9			0.1			110
Internal Elements							
Int	147.226						9
Party Elements							
P.Wall	78.143						20
P. Ceiling	51.9						100

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0901

Length	Psi-value		
5.815	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
4.185	0.32	E20	Exposed floor (normal)
4.185	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.18	E16	Corner (normal)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
5.815	0.03	E3	Sill
20.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.7	0.16	P1	Ground floor

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

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SAP 2012 Overheating Assessment

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

Property Details: E00 11 - 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 271.83
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	116.38	**(P1)**
Transmission heat loss coefficient:	35.7	
Summer heat loss coefficient:	152.09	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W03d-G)	0	1
North (E-W08f-G)	0	1
East (E-W08f-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W03d-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W08f-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W08f-G)	0.85	0.9	1	0.76	**(P8)**

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Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W03d-G)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (E-W08f-G)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
East (E-W08f-G)	0.9 x	3.57	117.51	0.38	0.8	0.76	87.8	
						Total	279.14	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	334.52	321.6	327.95	
Total summer gains	634.72	600.74	560.77	**(P5)**
Summer gain/loss ratio	4.17	3.95	3.69	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.1	0.1	0.1	
Threshold temperature	20.27	21.95	21.58	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Slight**	**Slight**	

Assessment of likelihood of high internal temperature: Slight

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.51
Printed on 01 April 2022 at 10:31:32

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:** E00 12 - 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)	31.25 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.30 kg/m²	**Fail**

Excess emissions = 2.05 kg/m² (6.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	65.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	58.8 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	0.10 (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	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	4.41m²
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	1.20
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 12 - Level 0

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 262.15
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	71 m²	3.775 m

Living area:	29 m² (fraction 0.408)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04e-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W06c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04e-G	16mm or more	0.8	0.38	1.3	4.41	1
E-W06c-G	16mm or more	0.8	0.38	1.3	6.7	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04e-G		Ext	North	1.728	2.55
E-W06c-G		Ext	North	2.628	2.55
E-W02c-G		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	41.148	14.65	26.5	0.18	0	False	14
Floor	71			0.1			110
Internal Elements							
Int	160.438						9
Party Elements							
P.Wall	94.375						20
P. Ceiling	71						100

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1287

Length	Psi-value		
5.656	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
5.244	0.32	E20	Exposed floor (normal)
5.244	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
5.746	0.03	E3	Sill
24.7	0.24	P4	Roof (insulation at ceiling level)
24.7	0.16	P1	Ground floor

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: E00 12 - 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 262.15
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:	106.14	**(P1)**
Transmission heat loss coefficient:	44.4	
Summer heat loss coefficient:	150.55	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W04e-G)	0	1
North (E-W06c-G)	0	1
North (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W04e-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W06c-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W04e-G)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (E-W06c-G)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-W02c-G)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	248.94	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	414.53	398.16	405.76	
Total summer gains	683.85	647.1	608.17	**(P5)**
Summer gain/loss ratio	4.54	4.3	4.04	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.16	0.16	0.16	
Threshold temperature	20.71	22.36	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 10:31:32

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 53.7m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 13 - 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)	31.85 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.04 kg/m²	**Fail**

Excess emissions = 1.19 kg/m² (3.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	61.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	54.5 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	0.10 (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	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	5.19m²
Windows facing: East	5.19m²
Ventilation rate:	1.80
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 13 - Level 0

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 262.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	53.7 m²	3.775 m

Living area:	28.7 m² (fraction 0.534)
Front of dwelling faces:	East

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W05c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W05c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W05e-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05c-G	16mm or more	0.8	0.38	1.3	5.27	1
E-W05c-G	16mm or more	0.8	0.38	1.3	5.19	1
E-W05e-G	16mm or more	0.8	0.38	1.3	5.19	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05c-G		Ext	North	2.065	2.55
E-W05c-G		Ext	East	2.035	2.55
E-W05e-G		Ext	East	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	32.465	15.65	16.82	0.18	0	False	14
Floor	53.7			0.1			110
Internal Elements							
Int	127.596						9
Party Elements							
P.Wall	70.593						20
P. Ceiling	53.7						100

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.081

Length	Psi-value		
6.135	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
2.465	0.32	E20	Exposed floor (normal)
2.465	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
3.775	0.18	E16	Corner (normal)
6.135	0.03	E3	Sill
18.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.6	0.16	P1	Ground floor

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:

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: E00 13 - Level 0

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 262.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	120.41	**(P1)**
Transmission heat loss coefficient:	34.7	
Summer heat loss coefficient:	155.13	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W05c-G)	0	1
East (E-W05c-G)	0	1
East (E-W05e-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W05c-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W05c-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W05e-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W05c-G)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
East (E-W05c-G)	0.9 x	5.19	117.51	0.38	0.8	0.76	127.65	
East (E-W05e-G)	0.9 x	5.19	117.51	0.38	0.8	0.76	127.65	
						Total	344.84	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	342.44	329.19	335.66	
Total summer gains	710.32	674.03	633.07	**(P5)**
Summer gain/loss ratio	4.58	4.34	4.08	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.17	0.17	0.17	
Threshold temperature	20.74	22.41	22.05	**(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 10:31:32

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 55.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 14 - 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)	32.86 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.24 kg/m²	**Fail**

Excess emissions = 0.38 kg/m² (1.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	64.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	56.2 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	0.10 (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	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	6.81m²
Ventilation rate:	1.40
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 14 - Level 0

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 267.4
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	55.9 m²	3.775 m

Living area:	31.2 m² (fraction 0.558)
Front of dwelling faces:	South

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W06c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W05g-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06c-G	16mm or more	0.8	0.38	1.3	6.7	1
E-W05g-G	16mm or more	0.8	0.38	1.3	6.81	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c-G		Ext	North	2.628	2.55
E-W05g-G		Ext	North	2.065	3.3

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	32.088	13.51	18.58	0.18	0	False	14
Floor	55.9			0.1			110
Internal Elements							
Int	135.523						9
Party Elements							
P.Wall	86.448						20
P. Ceiling	55.9						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0906

Length	**Psi-value**		
2.628	0.067	E2	Other lintels (including other steel lintels)

SAP Input

6.6	0.045	E4	Jamb
5.872	0.32	E20	Exposed floor (normal)
5.872	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
2.065	0.013	E2	Other lintels (including other steel lintels)
5.1	0.016	E4	Jamb
2.628	0.03	E3	Sill
2.065	0.021	E3	Sill
22.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
22.9	0.16	P1	Ground floor

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: E00 14 - 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 267.4
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:	97.49	**(P1)**
Transmission heat loss coefficient:	33.6	
Summer heat loss coefficient:	131.1	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W06c-G)	0	1
North (E-W05g-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W06c-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W05g-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W06c-G)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-W05g-G)	0.9 x	6.81	81.19	0.38	0.8	0.76	115.72	
						Total	229.57	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	352.08	338.41	345.03	
Total summer gains	600.44	567.97	531.69	**(P5)**
Summer gain/loss ratio	4.58	4.33	4.06	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.13	0.13	0.13	
Threshold temperature	20.71	22.36	21.98	**(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 10:31:32

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:** E00 15 - 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)	33.63 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	36.85 kg/m²	**Fail**

Excess emissions = 3.22 kg/m² (9.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	74.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	64.9 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	0.10 (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	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	10.66m²
Windows facing: North	6.81m²
Ventilation rate:	1.20
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 15 - Level 0

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 261.3
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	3.775 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W03f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W05h-g	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W03f-G	16mm or more	0.8	0.38	1.3	5.33	2
E-W05h-g	16mm or more	0.8	0.38	1.3	6.81	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W03f-G		Ext	North	1.615	3.3
E-W05h-g		Ext	North	2.065	3.3

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	69.083	17.47	51.61	0.18	0	False	14
Floor	72.3			0.1			110
Internal Elements							
Int	180.824						9
Party Elements							
P.Wall	67.95						20
P. Ceiling	72.3						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.108

Length	**Psi-value**		
5.295	0.013	E2	Other lintels (including other steel lintels)

SAP Input

19.8	0.016	E4	Jamb
13	0.32	E20	Exposed floor (normal)
13	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
3.775	0.18	E16	Corner (normal)
5.295	0.021	E3	Sill
18	0.24	P4	Roof (insulation at ceiling level)
18	0.16	P1	Ground floor

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: E00 15 - 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 261.3
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:	108.08	**(P1)**
Transmission heat loss coefficient:	53.4	
Summer heat loss coefficient:	161.45	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W03f-G)	0	1
North (E-W05h-g)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W03f-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W05h-g)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W03f-G)	0.9 x	10.66	81.19	0.38	0.8	0.76	181.14	
North (E-W05h-g)	0.9 x	6.81	81.19	0.38	0.8	0.76	115.72	
						Total	296.86	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.47	402.88	410.56	
Total summer gains	740.63	699.74	651.93	**(P5)**
Summer gain/loss ratio	4.59	4.33	4.04	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.17	0.17	0.17	
Threshold temperature	20.76	22.4	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 10:31:32

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 72.6m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 16 - 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)	28.52 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.35 kg/m²	**Fail**

Excess emissions = 0.83 kg/m² (2.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	56.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	50.8 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	0.10 (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	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	5.27m²
Ventilation rate:	1.30
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 16 - Level 0

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 263.51
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	72.6 m²	3.775 m

Living area:	30.1 m² (fraction 0.415)
Front of dwelling faces:	North

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W03d-G	16mm or more	0.8	0.38	1.3	4.12	2
E-W05e-G	16mm or more	0.8	0.38	1.3	5.27	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W03d-G		Ext	South	1.615	2.55
E-W05e-G		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	69.083	13.51	55.57	0.18	0	False	14
Floor	72.6			0.1			110
Internal Elements							
Int	192.525						9
Party Elements							
P.Wall	68.705						20
P. Ceiling	72.6						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0765

Length	**Psi-value**		
5.295	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
13	0.14	E7	Party floor between dwellings (in blocks of flats)
13	0.32	E20	Exposed floor (normal)
3.775	0.18	E16	Corner (normal)
7.55	0.12	E18	Party wall between dwellings
5.295	0.021	E3	Sill
17.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.8	0.16	P1	Ground floor

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: E00 16 - 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 263.51
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	117.57	**(P1)**
Transmission heat loss coefficient:	44.8	
Summer heat loss coefficient:	162.37	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W03d-G)	0	1
South (E-W05e-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W03d-G)	0.85	0.9	1	0.76	**(P8)**
South (E-W05e-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W03d-G)	0.9 x	8.24	112.21	0.38	0.8	0.76	193.52	
South (E-W05e-G)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
						Total	317.28	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	420.63	403.99	411.7	
Total summer gains	749.52	721.28	724.74	**(P5)**
Summer gain/loss ratio	4.62	4.44	4.46	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.16	0.16	0.16	
Threshold temperature	20.77	22.5	22.42	**(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 10:31:32

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:** E00 17 - 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)	27.38 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.12 kg/m²	**Fail**

Excess emissions = 0.74 kg/m² (2.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	51.2 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	0.10 (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	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	3.54m²
Windows facing: West	3.54m²
Windows facing: South	2.4m²
Ventilation rate:	1.10
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 17 - Level 0

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 265.24
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	85 m²	3.775 m

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

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W02d-G		Ext	West	1.39	2.55
E-W02c-G		Ext	West	1.39	2.55
E-W01b-G		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	32.843	9.48	23.36	0.18	0	False	14
Floor	85			0.1			110
Internal Elements							
Int	203.474						9
Party Elements							
P.Wall	126.84						20
P. Ceiling	85						100

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1443

Length	Psi-value		
3.72	0.013	E2	Other lintels (including other steel lintels)
15.3	0.016	E4	Jamb
4.98	0.32	E20	Exposed floor (normal)
4.98	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0	E17	Corner (inverted internal area greater than external area)
7.55	0.12	E18	Party wall between dwellings
3.72	0.021	E3	Sill
33.6	0.24	P4	Roof (insulation at ceiling level)
33.6	0.16	P1	Ground floor

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:

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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: E00 17 - Level 0

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 265.24
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	116.48	**(P1)**
Transmission heat loss coefficient:	41.4	
Summer heat loss coefficient:	157.91	**(P2)**

Overhangs:

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

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Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (E-W02d-G)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
West (E-W02c-G)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
South (E-W01b-G)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	230.49	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	464.79	446.43	455.29	
Total summer gains	708.06	676.92	664.1	**(P5)**
Summer gain/loss ratio	4.48	4.29	4.21	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.14	0.14	0.14	
Threshold temperature	20.63	22.33	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 10:31:32

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: E00 18 - 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)	35.22 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.50 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	59.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	51.8 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	0.10 (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	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:	0.63	
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	1.63m²
Ventilation rate:	1.60
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 18 - Level 0

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 270.74
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	38.8 m²	3.775 m

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

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05e-G	16mm or more	0.8	0.38	1.3	5.27	1
E-W01b-G	16mm or more	0.8	0.38	1.3	1.63	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e-G		Ext	West	2.065	2.55
E-W01b-G		Ext	West	0.64	2.55

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.16	6.9	17.26	0.18	0	False	14
Floor	38.8			0.1			110
Internal Elements							
Int	63.043						9
Party Elements							
P.Wall	77.388						20
P. Ceiling	38.8						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0958			
	Length	**Psi-value**		
	2.705	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
3.695	0.32	E20	Exposed floor (normal)
3.695	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
2.705	0.021	E3	Sill
19.8	0.16	P1	Ground floor
19.8	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 18 - Level 0

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 270.74
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:	77.34	**(P1)**
Transmission heat loss coefficient:	21.5	
Summer heat loss coefficient:	98.88	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (E-W05e-G)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
West (E-W01b-G)	0.9 x	1.63	117.51	0.38	0.8	0.76	40.09	
						Total	169.7	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	277.85	267.39	272.87	
Total summer gains	457.99	437.1	422.17	**(P5)**
Summer gain/loss ratio	4.63	4.42	4.27	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.1	0.1	0.1	
Threshold temperature	20.74	22.43	22.17	**(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 10:31:31

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 48.9m²

Site Reference : Station Hill - Block E

Plot Reference: E00 19 - 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)	29.74 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.67 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.8 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	0.10 (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	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:	0.63	
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	2.4m²
Ventilation rate:	1.40
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 19 - Level 0

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 269.16
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	48.9 m²	3.775 m

Living area:	25.7 m² (fraction 0.526)
Front of dwelling faces:	North

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05e-G	16mm or more	0.8	0.38	1.3	5.27	1
E-W01b-G	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e-G		Ext	South	2.065	2.55
E-W01b-G		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	29.445	7.67	21.77	0.18	0	False	14
Floor	48.9			0.1			110
Internal Elements							
Int	107.211						9
Party Elements							
P.Wall	81.163						20
P. Ceiling	48.9						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0883

Length	**Psi-value**		
3.005	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
4.8	0.32	E20	Exposed floor (normal)
4.8	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
3.005	0.021	E3	Sill
22.1	0.16	P1	Ground floor
22.1	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 19 - 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 269.16
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:	85.28	**(P1)**
Transmission heat loss coefficient:	25.2	
Summer heat loss coefficient:	110.49	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W05e-G)	0	1
South (E-W01b-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W05e-G)	0.85	0.9	1	0.76	**(P8)**
South (E-W01b-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e-G)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-W01b-G)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	180.13	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	321.54	309.21	315.43	
Total summer gains	508.26	489.35	493.16	**(P5)**
Summer gain/loss ratio	4.6	4.43	4.46	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.12	0.12	0.12	
Threshold temperature	20.72	22.44	22.38	**(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 10:31:31

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 51.3m²

Site Reference : Station Hill - Block E

Plot Reference: E00 20 - 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)	29.19 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.93 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	44.5 kWh/m²	
		OK

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	0.10 (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	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	

DRAFT

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:	0.63	
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	2.4m²
Ventilation rate:	1.40
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 20 - Level 0

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 268.28
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	51.3 m²	3.775 m

Living area:	28.3 m² (fraction 0.552)
Front of dwelling faces:	North

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05e-G	16mm or more	0.8	0.38	1.3	5.27	1
E-W01b-G	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e-G		Ext	South	2.065	2.55
E-W01b-G		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	28.313	7.67	20.64	0.18	0	False	14
Floor	51.3			0.1			110
Internal Elements							
Int	107.966						9
Party Elements							
P.Wall	86.448						20
P. Ceiling	51.3						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0865

Length	**Psi-value**		
3.005	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
4.5	0.32	E20	Exposed floor (normal)
4.5	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
3.005	0.021	E3	Sill
22.8	0.16	P1	Ground floor
22.8	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 20 - 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 268.28
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:	89.47	**(P1)**
Transmission heat loss coefficient:	25.2	
Summer heat loss coefficient:	114.68	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W05e-G)	0	1
South (E-W01b-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W05e-G)	0.85	0.9	1	0.76	**(P8)**
South (E-W01b-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e-G)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-W01b-G)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	180.13	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	332.22	319.45	325.87	
Total summer gains	518.94	499.59	503.6	**(P5)**
Summer gain/loss ratio	4.53	4.36	4.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.12	0.12	0.12	
Threshold temperature	20.65	22.38	22.31	**(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 10:31:31

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 39.8m²

Site Reference : Station Hill - Block E

Plot Reference: E00 21 - 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)	34.69 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.61 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	58.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	51.3 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	0.10 (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	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:	0.63	
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
Ventilation rate:	1.60
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 21 - Level 0

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 324.27
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	39.8 m²	3.775 m

Living area:	33 m² (fraction 0.829)
Front of dwelling faces:	West

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c-G		Ext	East	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	18.498	6.7	11.8	0.18	0	False	14
Floor	51			0.1			110
Internal Elements							
Int	45.3						9
Party Elements							
P.Wall	81.163						20
P. Ceiling	51						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0801

Length	Psi-value		
2.628	0.013	E2	Other lintels (including other steel lintels)
5.1	0.016	E4	Jamb
2.272	0.32	E20	Exposed floor (normal)
2.272	0.14	E7	Party floor between dwellings (in blocks of flats)

SAP Input

3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
2.628	0.021	E3	Sill
21.55	0.16	P1	Ground floor
21.55	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 21 - Level 0

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 324.27
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:	79.33	**(P1)**
Transmission heat loss coefficient:	21.1	
Summer heat loss coefficient:	100.4	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W06c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06c-G)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
						Total	164.78	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	282.07	271.44	277	
Total summer gains	457	436.23	421.97	**(P5)**
Summer gain/loss ratio	4.55	4.34	4.2	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0	0	0	
Threshold temperature	20.55	22.24	22	**(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 10:31:31

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 50.7m²

Site Reference : Station Hill - Block E **Plot Reference:** E00 22 - 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)	31.32 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.87 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	57.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	50.3 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	0.10 (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	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:	0.63	
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	5m²
Ventilation rate:	1.70
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 22 - Level 0

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 263.94
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	50.7 m²	3.775 m

Living area:	29.2 m² (fraction 0.576)
Front of dwelling faces:	West

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W06C-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06C-G	16mm or more	0.8	0.38	1.3	6.7	1
E-W02f-G	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06C-G		Ext	East	2.628	2.55
E-W02f-G		Ext	East	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.935	11.7	16.23	0.18	0	False	14
Floor	50.7			0.1			110
Internal Elements							
Int	89.845						9
Party Elements							
P.Wall	84.938						20
P. Ceiling	50.7						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0812

Length	**Psi-value**		
4.018	0.013	E2	Other lintels (including other steel lintels)

SAP Input

12.3	0.016	E4	Jamb
3.38	0.32	E20	Exposed floor (normal)
3.38	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
4.018	0.021	E3	Sill
22.43	0.16	P1	Ground floor
22.43	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 22 - Level 0

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 263.94
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:	107.37	**(P1)**
Transmission heat loss coefficient:	28.8	
Summer heat loss coefficient:	136.2	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06C-G)	0	1
East (E-W02f-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W06C-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W02f-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06C-G)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (E-W02f-G)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
						Total	287.76	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	329.23	316.54	322.81	
Total summer gains	634.69	604.3	575.96	**(P5)**
Summer gain/loss ratio	4.66	4.44	4.23	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.15	0.15	0.15	
Threshold temperature	20.81	22.49	22.18	**(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 10:31:31

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 40.3m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 23 - 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)	34.36 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	34.82 kg/m²	**Fail**

Excess emissions = 0.46 kg/m² (1.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	60.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	54.0 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	0.10 (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	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	6.22m²
Windows facing: East	5m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 23 - Level 0

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 276.84
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	40.3 m²	3.775 m

Living area:	20.2 m² (fraction 0.501)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02f-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04f-G	16mm or more	0.8	0.38	1.3	6.22	1
E-W02f-G	16mm or more	0.8	0.38	1.3	5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04f-G		Ext	East	1.728	3.6
E-W02f-G		Ext	East	1.39	3.6

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	27.935	11.22	16.71	0.18	0	False	14
Floor	40.3			0.1			110
Internal Elements							
Int	84.56						9
Party Elements							
P.Wall	84.938						20
P. Ceiling	40.3						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0963			
	Length	**Psi-value**		
	3.118	0.013	E2	Other lintels (including other steel lintels)

SAP Input

14.4	0.016	E4	Jamb
4.282	0.32	E20	Exposed floor (normal)
4.282	0.14	E7	Party floor between dwellings (in blocks of flats)
7.55	0.12	E18	Party wall between dwellings
3.118	0.021	E3	Sill
21	0.16	P1	Ground floor
21	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 23 - Level 0

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 276.84
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:	100.41	**(P1)**
Transmission heat loss coefficient:	27.5	
Summer heat loss coefficient:	127.88	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W04f-G)	0	1
East (E-W02f-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W04f-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W02f-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W04f-G)	0.9 x	6.22	117.51	0.38	0.8	0.76	152.98	
East (E-W02f-G)	0.9 x	5	117.51	0.38	0.8	0.76	122.97	
						Total	275.95	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	284.06	273.33	278.89	
Total summer gains	576.99	549.29	521.66	**(P5)**
Summer gain/loss ratio	4.51	4.3	4.08	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.06	0.06	0.06	
Threshold temperature	20.57	22.26	21.94	**(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 10:31:31

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 50.4m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 24 - 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)	33.22 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.24 kg/m²	**Fail**

Excess emissions = 0.02 kg/m² (0.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	63.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	54.6 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	0.10 (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	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:	1.30
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 24 - Level 0

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 271.54
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	50.4 m²	3.775 m

Living area:	21.3 m² (fraction 0.423)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W06C-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06C-G	16mm or more	0.8	0.38	1.3	6.7	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06C-G		Ext	North	2.628	2.55
E-W02c-G		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	35.485	10.24	25.25	0.18	0	False	14
Floor	50.4			0.1			110
Internal Elements							
Int	128.35						9
Party Elements							
P.Wall	79.653						20
P. Ceiling	50.4						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.082

Length	**Psi-value**		
4.018	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
5.382	0.32	E20	Exposed floor (normal)
5.382	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
4.018	0.021	E3	Sill
21	0.16	P1	Ground floor
21	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 24 - 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 271.54
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	81.62	**(P1)**
Transmission heat loss coefficient:	29.3	
Summer heat loss coefficient:	110.9	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W06C-G)	0	1
North (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W06C-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W06C-G)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-W02c-G)	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	327.9	315.28	321.52	
Total summer gains	516.15	489.28	463	**(P5)**
Summer gain/loss ratio	4.65	4.41	4.17	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.1	0.1	0.1	
Threshold temperature	20.75	22.41	22.07	**(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 10:31:31

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:** E00 25 - 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)	34.64 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	35.38 kg/m²	**Fail**

Excess emissions = 0.74 kg/m² (2.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	62.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	54.1 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	0.10 (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	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	25.0%	
Minimum	75.0%	**Fail**

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:	1.40
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 25 - Level 0

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 269.81
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	43.1 m²	3.775 m

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

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W04D-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04D-G	16mm or more	0.8	0.38	1.3	4.41	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04D-G		Ext	North	1.728	2.55
E-W02c-G		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	28.69	7.95	20.74	0.18	0	False	14
Floor	43.1			0.1			110
Internal Elements							
Int	83.05						9
Party Elements							
P.Wall	77.01						20
P. Ceiling	43.1						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0906

Length	**Psi-value**		
3.118	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
4.482	0.14	E7	Party floor between dwellings (in blocks of flats)
4.482	0.32	E20	Exposed floor (normal)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
3.118	0.021	E3	Sill
20.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.4	0.16	P1	Ground floor

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: 25%
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: E00 25 - 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 269.81
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:	75.17	**(P1)**
Transmission heat loss coefficient:	24.4	
Summer heat loss coefficient:	99.54	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W04D-G)	0	1
North (E-W02c-G)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W04D-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W04D-G)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (E-W02c-G)	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	303.49	292.85	301.02	
Total summer gains	449.64	427.94	410.86	**(P5)**
Summer gain/loss ratio	4.52	4.3	4.13	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.11	0.11	0.11	
Threshold temperature	20.63	22.31	22.04	**(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 10:31:31

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 49.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E00 26 - 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)	35.48 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	35.92 kg/m²	**Fail**

Excess emissions = 0.44 kg/m² (1.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	69.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	59.2 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	0.10 (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	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
Ventilation rate:	1.10
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E00 26 - Level 0

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 235.49
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	49.8 m²	3.775 m

Living area:	29 m² (fraction 0.582)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W07a-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W07a-G	16mm or more	0.8	0.38	1.3	4.63	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W07a-G		Ext	North	1.815	2.55
E-W02c-G		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	27.935	8.17	19.76	0.18	0	False	14
Commmercial	27.935	0	27.93	0.18	0.43	False	14
Floor	43.4			0.1			110
Internal Elements							
Int	88.335						9
Party Elements							
P.Wall	57.531						20
P. Ceiling	43.4						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0895

Length	**Psi-value**		
3.205	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
11.6	0.32	E20	Exposed floor (normal)
11.6	0.14	E7	Party floor between dwellings (in blocks of flats)
3.775	0.12	E18	Party wall between dwellings
3.775	0.12	E25	Staggered party wall between dwellings
3.205	0.021	E3	Sill
14.8	0.16	P1	Ground floor
14.8	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E00 26 - 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 235.49
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	68.24	**(P1)**
Transmission heat loss coefficient:	31.5	
Summer heat loss coefficient:	99.79	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W07a-G)	0	1
North (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W07a-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W07a-G)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (E-W02c-G)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
						Total	138.83	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	325.43	312.93	319.19	
Total summer gains	475.62	451.76	432.06	**(P5)**
Summer gain/loss ratio	4.77	4.53	4.33	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.35	0.35	0.35	
Threshold temperature	21.12	22.78	22.48	**(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 10:31:31

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:** E01 01 - Level 1

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)	34.11 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.11 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	47.3 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	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	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:	0.63	
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:	2.10
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 01 - Level 1

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 252.77
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	38.3 m²	2.975 m

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

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c-G		Ext	North	2.628	2.55
E-W02c-G		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	18.534	10.24	8.29	0.18	0	False	14
Floor	38.3			0.05			110
Internal Elements							
Int	42.84						9
Party Elements							
P.Wall	56.823						20
P. Ceiling	38.3						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1191

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)
5.95	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: E01 01 - Level 1

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 252.77
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:	78.96	**(P1)**
Transmission heat loss coefficient:	22.8	
Summer heat loss coefficient:	101.8	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W06c-G)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-W02c-G)	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	4.56	4.32	4.05	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.23	0.23	0.23	
Threshold temperature	20.79	22.45	22.08	**(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 10:31:30

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: E01 02 - Level 1

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)	31.38 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.25 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	50.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.9 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	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:	0.63	
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:	1.80
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 02 - Level 1

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 258.27
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	41.9 m²	2.975 m

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

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04d-G	16mm or more	0.8	0.38	1.3	4.41	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04d-G		Ext	North	1.728	2.55
E-W02c-G		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	20.528	7.95	12.58	0.18	0	False	14
Floor	41.9			0.05			110
Internal Elements							
Int	66.343						9
Party Elements							
P.Wall	62.475						20
P. Ceiling	41.9						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1217

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)
5.95	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: E01 02 - Level 1

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 258.27
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	74.04	**(P1)**
Transmission heat loss coefficient:	21.8	
Summer heat loss coefficient:	95.82	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W04d-G)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (E-W02c-G)	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	4.56	4.33	4.13	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.19	0.19	0.19	
Threshold temperature	20.75	22.42	22.12	**(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 10:31:30

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:** E01 03 - Level 1
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)	31.77 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.46 kg/m²	**Fail**

Excess emissions = 0.69 kg/m² (2.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	54.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	47.7 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	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:	2.20
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 03 - Level 1

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 255.2
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	43.7 m²	2.975 m

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

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W07b-G		Ext	North	1.815	2.55
E-W02c-G		Ext	North	1.39	2.55
E-W07b-G		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	28.263	12.8	15.46	0.18	0	False	14
Floor	43.7			0.05			110
Internal Elements							
Int	63.219						9
Party Elements							
P.Wall	59.5						20
P. Ceiling	43.7						100

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1088

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
9	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
5.02	0.03	E3	Sill
19.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
19.5	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

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: E01 03 - Level 1

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 255.2
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:	94.39	**(P1)**
Transmission heat loss coefficient:	28.6	
Summer heat loss coefficient:	123	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W07b-G)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (E-W02c-G)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (E-W07b-G)	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	4.63	4.39	4.11	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.21	0.21	0.21	
Threshold temperature	20.84	22.5	22.13	**(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 10:31:30

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 68.4m²
Site Reference : Station Hill - Block E **Plot Reference:** E01 04 - Level 1
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)	23.06 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.52 kg/m²	**Fail**

Excess emissions = 2.46 kg/m² (10.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.8 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	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	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:	2.30
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 04 - Level 1

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 17.18
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	68.4 m²	2.975 m

Living area:	27.2 m² (fraction 0.398)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W05d-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05d-G	16mm or more	0.8	0.38	1.3	5.27	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05d-G		Ext	South	2.065	2.55
E-W02c-G		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	28.263	12.35	15.91	0.18	0	False	0
Floor	68.4			0.05			0
Internal Elements							
Int	130.603						9
Party Elements							
P.Wall	74.078						0
P. Ceiling	68.4						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0948

Length	**Psi-value**		
4.845	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
9.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
4.845	0.03	E3	Sill
24.9	0	P3	Intermediate floor between dwellings (in blocks of flats)
24.9	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

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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: E01 04 - Level 1

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 17.18
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:	154.45	**(P1)**
Transmission heat loss coefficient:	30.7	
Summer heat loss coefficient:	185.16	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W05d-G)	0	1
South (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W05d-G)	0.85	0.9	1	0.76	**(P8)**
South (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05d-G)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-W02c-G)	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	404.48	388.55	396.02	
Total summer gains	705.13	678.59	682.18	**(P5)**
Summer gain/loss ratio	3.81	3.66	3.68	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.69	23.44	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 10:31:30

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:** E01 05 - Level 1
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)	25.19 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.36 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.1 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	0.05 (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	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: South	5.27m²
Windows facing: South	6.94m²
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 05 - Level 1

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 259.11
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.975 m

Living area:	33.2 m² (fraction 0.608)
Front of dwelling faces:	North

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W05D-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05D-G	16mm or more	0.8	0.38	1.3	5.27	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.47	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05D-G		Ext	South	2.065	2.55
E-W02c-G		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	23.8	12.21	11.59	0.18	0	False	14
Floor	54.6			0.05			110
Internal Elements							
Int	128.521						9
Party Elements							
P.Wall	68.128						20
P. Ceiling	54.6						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1053

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

SAP Input

15.3	0.045	E4	Jamb
6.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
4.785	0.03	E3	Sill
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 + 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: E01 05 - Level 1

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 259.11
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:	101.85	**(P1)**
Transmission heat loss coefficient:	28.2	
Summer heat loss coefficient:	130.01	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W05D-G)	0	1
South (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W05D-G)	0.85	0.9	1	0.76	**(P8)**
South (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05D-G)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-W02c-G)	0.9 x	6.94	112.21	0.38	0.8	0.76	162.99	
						Total	286.75	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.97	339.5	
Total summer gains	643.63	619.72	622.42	**(P5)**
Summer gain/loss ratio	4.95	4.77	4.79	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.19	0.19	0.19	
Threshold temperature	21.14	22.85	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 10:31:30

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 51m²

Site Reference : Station Hill - Block E

Plot Reference: E01 06 - Level 1

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)	27.94 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.84 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	46.3 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	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	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:	0.63	
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:	2.10
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 06 - Level 1

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 252.08
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	51 m²	2.975 m

Living area:	30 m² (fraction 0.588)
Front of dwelling faces:	West

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Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c-G		Ext	East	2.628	2.55
E-W02c-G		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	22.313	10.24	12.07	0.18	0	False	14
Floor	51			0.05			110
Internal Elements							
Int	72.888						9
Party Elements							
P.Wall	66.045						20
P. Ceiling	51						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.108

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)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
4.018	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

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: E01 06 - Level 1

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 252.08
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:	105.15	**(P1)**
Transmission heat loss coefficient:	25.3	
Summer heat loss coefficient:	130.44	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06c-G)	0	1
East (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W06c-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06c-G)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (E-W02c-G)	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	330.55	317.81	324.09	
Total summer gains	597.89	569.66	545.66	**(P5)**
Summer gain/loss ratio	4.58	4.37	4.18	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.24	0.24	0.24	
Threshold temperature	20.82	22.5	22.22	**(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 10:31:30

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: E01 07 - Level 1

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)	26.75 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	46.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.9 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	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	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:	0.63	
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	3.47m²
Ventilation rate:	2.10
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 07 - Level 1

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 252.02
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	51.2 m²	2.975 m

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

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Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06c-G	16mm or more	0.8	0.38	1.3	6.7	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.47	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c-G		Ext	East	2.628	2.55
E-W02c-G		Ext	East	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	22.313	10.17	12.14	0.18	0	False	14
Floor	51.2			0.05			110
Internal Elements							
Int	71.4						9
Party Elements							
P.Wall	66.938						20
P. Ceiling	51.2						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.108

Length	**Psi-value**		
3.988	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)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
3.988	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

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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: E01 07 - Level 1

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 252.02
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:	105.56	**(P1)**
Transmission heat loss coefficient:	25.3	
Summer heat loss coefficient:	130.81	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06c-G)	0	1
East (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W06c-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06c-G)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (E-W02c-G)	0.9 x	3.47	117.51	0.38	0.8	0.76	85.34	
						Total	250.13	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	331.43	318.65	324.95	
Total summer gains	596.95	568.78	545	**(P5)**
Summer gain/loss ratio	4.56	4.35	4.17	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.24	0.24	0.24	
Threshold temperature	20.8	22.48	22.2	**(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 10:31:30

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: E01 08 - Level 1

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)	27.9 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.76 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	46.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.9 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	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	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:	0.63	
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	3.47m²
Ventilation rate:	2.10
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 08 - Level 1

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 250.96
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	51.1 m²	2.975 m

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

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Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06c-G	16mm or more	0.8	0.38	1.3	6.7	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.47	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c-G		Ext	East	2.628	2.55
E-W02c-G		Ext	East	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	22.015	10.17	11.84	0.18	0	False	14
Floor	51.1			0.05			110
Internal Elements							
Int	66.045						9
Party Elements							
P.Wall	66.64						20
P. Ceiling	51.1						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1082

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)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
3.988	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

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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: E01 08 - Level 1

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 250.96
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:	105.35	**(P1)**
Transmission heat loss coefficient:	25.2	
Summer heat loss coefficient:	130.52	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06c-G)	0	1
East (E-W02c-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (E-W06c-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06c-G)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (E-W02c-G)	0.9 x	3.47	117.51	0.38	0.8	0.76	85.34	
						Total	250.13	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	330.99	318.23	324.52	
Total summer gains	596.51	568.36	544.57	**(P5)**
Summer gain/loss ratio	4.57	4.35	4.17	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.24	0.24	0.24	
Threshold temperature	20.81	22.5	22.22	**(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 10:31:29

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:** E01 09 - Level 1

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)	32.57 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.48 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	47.1 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	0.05 (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	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:	0.63	
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:	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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 09 - Level 1

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 259.93
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	42.1 m²	2.975 m

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

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Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c-G		Ext	North	2.628	2.55
E-W02c-G		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	26.775	10.24	16.53	0.18	0	False	14
Floor	42.1			0.05			110
Internal Elements							
Int	72.293						9
Party Elements							
P.Wall	60.988						20
P. Ceiling	42.1						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1145

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)
5.95	0.12	E25	Staggered party wall between dwellings
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
Assess Zero Carbon Home:	No

SAP Input

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SAP 2012 Overheating Assessment

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

Property Details: E01 09 - Level 1

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 259.93
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:	78.53	**(P1)**
Transmission heat loss coefficient:	25.6	
Summer heat loss coefficient:	104.15	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W06c-G)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-W02c-G)	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	4.61	4.37	4.11	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.18	0.18	0.18	
Threshold temperature	20.79	22.45	22.09	**(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 10:31:29

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: E01 10 - Level 1

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)	31.14 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.99 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	51.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.8 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	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:	0.63	
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:	1.80
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 10 - Level 1

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 256.59
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	43.1 m²	2.975 m

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

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04d-G	16mm or more	0.8	0.38	1.3	4.41	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04d-G		Ext	North	1.728	2.55
E-W02c-G		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	22.61	7.95	14.66	0.18	0	False	14
Floor	43.1			0.05			110
Internal Elements							
Int	65.45						9
Party Elements							
P.Wall	60.69						20
P. Ceiling	43.1						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1153

Length	**Psi-value**		
3.118	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)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
3.118	0.03	E3	Sill
20.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
20.2	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
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: E01 10 - Level 1

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 256.59
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	76.16	**(P1)**
Transmission heat loss coefficient:	22.2	
Summer heat loss coefficient:	98.36	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W04d-G)	0.9 x	4.41	81.19	0.38	0.8	0.76	74.94	
North (E-W02c-G)	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	4.5	4.27	4.07	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.2	0.2	0.2	
Threshold temperature	20.7	22.37	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 10:31:29

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:** E01 11 - Level 1
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)	31.57 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.18 kg/m²	**Fail**

Excess emissions = 0.61 kg/m² (1.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	53.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	47.0 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	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	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:	2.30
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 11 - Level 1

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 255.12
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	43.4 m²	2.975 m

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

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W07a-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W07a-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W07a-G	16mm or more	0.8	0.38	1.3	4.63	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.54	1
E-W07a-G	16mm or more	0.8	0.38	1.3	4.63	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W07a-G		Ext	North	1.815	2.55
E-W02c-G		Ext	North	1.39	2.55
E-W07a-G		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	26.18	12.8	13.38	0.18	0	False	14
Floor	43.4			0.05			110
Internal Elements							
Int	70.508						9
Party Elements							
P.Wall	56.823						20
P. Ceiling	43.4						100

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1109

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
7.6	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E25	Staggered party wall between dwellings
2.975	0.18	E16	Corner (normal)
5.02	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

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: E01 11 - Level 1

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 255.12
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:	98	**(P1)**
Transmission heat loss coefficient:	28.1	
Summer heat loss coefficient:	126.11	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W07a-G)	0	1
North (E-W02c-G)	0	1
East (E-W07a-G)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W07a-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**
East (E-W07a-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W07a-G)	0.9 x	4.63	81.19	0.38	0.8	0.76	78.67	
North (E-W02c-G)	0.9 x	3.54	81.19	0.38	0.8	0.76	60.15	
East (E-W07a-G)	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	4.51	4.27	4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.21	0.21	0.21	
Threshold temperature	20.72	22.39	22.02	**(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 10:31:29

Project Information:

Assessed By: ()
Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE
Total Floor Area: 71.9m²
Site Reference : Station Hill - Block E
Plot Reference: E01 12 - Level 1
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)	28.32 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.67 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	45.0 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	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	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:	0.63	
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	6.94m²
Ventilation rate:	1.50
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 12 - Level 1

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 250.06
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	71.9 m²	2.975 m

Living area:	30.2 m² (fraction 0.42)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W06B-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c-G	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06B-G	16mm or more	0.8	0.38	1.3	6.7	1
E-W02c-G	16mm or more	0.8	0.38	1.3	3.47	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06B-G		Ext	North	2.628	2.55
E-W02c-G		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	54.145	13.64	40.51	0.18	0	False	14
Floor	71.9			0.05			110
Internal Elements							
Int	138.041						9
Party Elements							
P.Wall	53.55						20
P. Ceiling	71.9						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0734

Length	**Psi-value**		
5.348	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
25.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E25	Staggered party wall between dwellings
2.975	0.18	E16	Corner (normal)
5.348	0.021	E3	Sill
18	0	P3	Intermediate floor between dwellings (in blocks of flats)
18	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:

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: E01 12 - Level 1

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 250.06
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.5 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	105.88	**(P1)**
Transmission heat loss coefficient:	37	
Summer heat loss coefficient:	142.87	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W06B-G)	0	1
North (E-W02c-G)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W06B-G)	0.85	0.9	1	0.76	**(P8)**
North (E-W02c-G)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W06B-G)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-W02c-G)	0.9 x	6.94	81.19	0.38	0.8	0.76	117.93	
						Total	231.78	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	417.98	401.45	409.11	
Total summer gains	668.73	633.23	597.57	**(P5)**
Summer gain/loss ratio	4.68	4.43	4.18	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.25	0.25	0.25	
Threshold temperature	20.93	22.58	22.23	**(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 10:31:29

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 49.8m²

Site Reference : Station Hill - Block E

Plot Reference: E01 13 - Level 1

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)	28.01 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.54 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.8 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	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	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:	0.63	
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	3.54m²
Ventilation rate:	1.80
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 13 - Level 1

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 252.39
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	49.8 m²	2.975 m

Living area:	28.8 m² (fraction 0.578)
Front of dwelling faces:	North

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e		Ext	South	2.065	2.55
E-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	43.733	8.81	34.92	0.18	0	False	14
Floor	49.8			0.05			110
Internal Elements							
Int	82.408						9
Party Elements							
P.Wall	44.03						20
P. Ceiling	49.8						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.088

Length	**Psi-value**		
3.455	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
22.5	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.18	E16	Corner (normal)
5.95	0.12	E18	Party wall between dwellings
3.455	0.021	E3	Sill
14.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
14.8	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:	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: E01 13 - Level 1

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 252.39
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	88	**(P1)**
Transmission heat loss coefficient:	27.9	
Summer heat loss coefficient:	115.9	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-W02c)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	206.9	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	325.32	312.82	319.04	
Total summer gains	539.8	519.72	523.18	**(P5)**
Summer gain/loss ratio	4.66	4.48	4.51	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.23	0.23	0.23	
Threshold temperature	20.89	22.62	22.55	**(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 10:31:29

Project Information:

Assessed By: ()
Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE
Total Floor Area: 40.4m²
Site Reference : Station Hill - Block E
Plot Reference: E01 14 - Level 1
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)	29.78 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.31 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	37.9 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	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:	0.63	
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	5.16m²
Windows facing: South	2.4m²
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 14 - Level 1

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 254.77
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	40.4 m²	2.975 m

Living area:	31.8 m² (fraction 0.787)
Front of dwelling faces:	North

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05e	16mm or more	0.8	0.38	1.3	5.16	1
E-W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e		Ext	South	2.065	2.5
E-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	24.99	7.56	17.43	0.18	0	False	14
Floor	40.4			0.05			110
Internal Elements							
Int	47.6						9
Party Elements							
P.Wall	56.823						20
P. Ceiling	40.4						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1167

Length	**Psi-value**		
3.005	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.1	0.016	E4	Jamb
10.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.18	E16	Corner (normal)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
3.005	0.021	E3	Sill
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: E01 14 - Level 1

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 254.77
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:	83.29	**(P1)**
Transmission heat loss coefficient:	22.1	
Summer heat loss coefficient:	105.42	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W05e)	0	1
South (E-W01b)	0	1

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e)	0.9 x	5.16	112.21	0.38	0.8	0.76	121.18	
South (E-W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	177.55	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	284.5	273.75	279.32	
Total summer gains	468.54	451.3	454.49	**(P5)**
Summer gain/loss ratio	4.44	4.28	4.31	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.22	0.22	0.22	
Threshold temperature	20.66	22.4	22.33	**(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 10:31:29

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: E01 15 - Level 1

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)	23.16 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.93 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.3 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	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	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: South	5.27m²
Windows facing: South	6.94m²
Ventilation rate:	1.80
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 15 - Level 1

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 251.98
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	69 m²	2.975 m

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

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05e	16mm or more	0.8	0.38	1.3	5.27	1
E-W02c	16mm or more	0.8	0.38	1.3	3.47	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e		Ext	South	2.065	2.55
E-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	30.048	12.21	17.84	0.18	0	False	14
Floor	69			0.05			110
Internal Elements							
Int	126.141						9
Party Elements							
P.Wall	75.565						20
P. Ceiling	69						100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0879

Length	**Psi-value**		
4.785	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
10.64	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
4.785	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 + 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: E01 15 - Level 1

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 251.98
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	121.93	**(P1)**
Transmission heat loss coefficient:	30.5	
Summer heat loss coefficient:	152.39	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-W02c)	0.9 x	6.94	112.21	0.38	0.8	0.76	162.99	
						Total	286.75	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	406.87	390.84	398.35	
Total summer gains	704.11	677.59	681.27	**(P5)**
Summer gain/loss ratio	4.62	4.45	4.47	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.24	0.24	0.24	
Threshold temperature	20.86	22.58	22.51	**(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 10:31:29

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: E01 16 - Level 1

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)	23.24 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	22.23 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.5 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	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	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: South	5.27m²
Windows facing: South	7.08m²
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 16 - Level 1

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 254.22
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	68.1 m²	2.975 m

Living area:	26.24 m² (fraction 0.385)
Front of dwelling faces:	North

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e		Ext	South	2.065	2.55
E-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	30.137	12.35	17.79	0.18	0	False	14
Floor	68.1			0.05			110
Internal Elements							
Int	144.288						9
Party Elements							
P.Wall	73.185						20
P. Ceiling	68.1						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.093

Length	**Psi-value**		
3.455	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
13.35	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	0.12	E18	Party wall between dwellings
1.39	0.067	E2	Other lintels (including other steel lintels)
5.1	0.045	E4	Jamb
3.455	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: E01 16 - Level 1

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 254.22
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:	127.03	**(P1)**
Transmission heat loss coefficient:	31	
Summer heat loss coefficient:	158.03	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-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	403.28	387.41	394.85	
Total summer gains	703.94	677.45	681.02	**(P5)**
Summer gain/loss ratio	4.45	4.29	4.31	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.22	0.22	0.22	
Threshold temperature	20.67	22.41	22.33	**(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 10:31:28

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: E01 17 - Level 1

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)	24.58 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.70 kg/m²	**Fail**

Excess emissions = 0.12 kg/m² (0.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	37.4 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	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	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:	1.70
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 17 - Level 1

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 251.38
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	69.5 m²	2.975 m

Living area:	28.3 m² (fraction 0.407)
Front of dwelling faces:	North

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e		Ext	South	2.065	2.55
E-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	53.253	12.35	40.9	0.18	0	False	14
Floor	69.5			0.05			110
Internal Elements							
Int	130.305						9
Party Elements							
P.Wall	56.525						20
P. Ceiling	69.5						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0866

Length	**Psi-value**		
4.845	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
26.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	0.12	E18	Party wall between dwellings
2.975	0.18	E16	Corner (normal)
4.845	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

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: E01 17 - Level 1

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 251.38
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:	115.99	**(P1)**
Transmission heat loss coefficient:	36.7	
Summer heat loss coefficient:	152.73	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-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	408.82	392.7	400.25	
Total summer gains	709.47	682.75	686.41	**(P5)**
Summer gain/loss ratio	4.65	4.47	4.49	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.24	0.24	0.24	
Threshold temperature	20.89	22.61	22.53	**(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 10:31:28

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: E01 18 - Level 1

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)	24.60 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.3 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**
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:	0.63	
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:	2.30
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: E01 18 - Level 1

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 219.68
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	52.3 m²	2.975 m

Living area:	22.9 m² (fraction 0.438)
Front of dwelling faces:	West

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c		Ext	East	2.628	2.55
E-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	21.42	10.24	11.18	0.18	0	False	14
Internal Elements							
Int	74.375						9
Party Elements							
P.Wall	62.475						20
P. Ceiling	52.3						100
Floor	52.3						80

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.3501			
	Length	**Psi-value**		
	6.4	0.14	E7	Party floor between dwellings (in blocks of flats)

SAP Input

5.95	0.12	E18	Party wall between dwellings
4.018	0.067	E2	Other lintels (including other steel lintels)
10.2	0.045	E4	Jamb
4.018	0.03	E3	Sill
21	0.24	P4	Roof (insulation at ceiling level)
21	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E01 18 - Level 1

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 219.68
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:	118.09	**(P1)**
Transmission heat loss coefficient:	22.2	
Summer heat loss coefficient:	140.26	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06c)	0	1
East (E-W02c)	0	1

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Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (E-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	4.3	4.1	3.93	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.46	0.46	0.46	
Threshold temperature	20.77	22.46	22.19	**(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 10:31:28

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:** E01 19 - Level 1
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)	25.33 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.42 kg/m²	**Fail**

Excess emissions = 0.09 kg/m² (0.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	35.9 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:	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: E01 19 - Level 1

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 222.18
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	51.1 m²	2.975 m

Living area:	29.4 m² (fraction 0.575)
Front of dwelling faces:	West

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c		Ext	East	2.628	2.55
E-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	22.313	10.24	12.07	0.18	0	False	14
Internal Elements							
Int	71.965						9
Party Elements							
P.Wall	66.938						20
P. Ceiling	51.1						100
Floor	51.1						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3557

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

SAP Input

10.2	0.045	E4	Jamb
6.96	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	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: E01 19 - Level 1

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 222.18
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:	115.39	**(P1)**
Transmission heat loss coefficient:	22.8	
Summer heat loss coefficient:	138.15	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W06c)	0	1
East (E-W02c)	0	1

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W06c)	0.9 x	6.7	117.51	0.38	0.8	0.76	164.78	
East (E-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	4.33	4.13	3.95	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.44	0.44	0.44	
Threshold temperature	20.78	22.47	22.2	**(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 10:31:28

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: E01 20 - Level 1

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)	26.76 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.60 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.0 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**
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:	0.63	
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	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: E01 20 - Level 1

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 226.95
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	43.6 m²	2.975 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:
E-W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04d	16mm or more	0.8	0.38	1.3	4.41	1
E-W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04d		Ext	East	1.728	2.55
E-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	19.04	7.95	11.09	0.18	0	False	14
Internal Elements							
Int	68.038						9
Party Elements							
P.Wall	63.963						20
P. Ceiling	43.6						100
Floor	43.6						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3967

Length	**Psi-value**		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.56	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
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 + 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: E01 20 - Level 1

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 226.95
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:	98.45	**(P1)**
Transmission heat loss coefficient:	19.4	
Summer heat loss coefficient:	117.82	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (E-W04d)	0	1
East (E-W02c)	0	1

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
East (E-W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (E-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	4.29	4.09	3.94	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.41	0.41	0.41	
Threshold temperature	20.7	22.41	22.15	**(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 10:31:28

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: E01 21 - Level 1

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)	20.74 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.02 kg/m²	**Fail**

Excess emissions = 0.28 kg/m² (1.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.8 kWh/m²	**Fail**

Excess energy = 0.77 kg/m² (02.7 %)

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	5.27m²
Windows facing: South	7.08m²
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: E01 21 - Level 1

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 223.93
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	68.5 m²	2.975 m

Living area:	27.8 m² (fraction 0.406)
Front of dwelling faces:	North

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e		Ext	South	2.065	2.55
E-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	29.75	12.35	17.4	0.18	0	False	14
Internal Elements							
Int	141.997						9
Party Elements							
P.Wall	74.375						20
P. Ceiling	68.5						100
Floor	68.5						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3136

Length	**Psi-value**		
4.845	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
10.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
4.845	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: E01 21 - Level 1

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 223.93
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:	141.22	**(P1)**
Transmission heat loss coefficient:	27.7	
Summer heat loss coefficient:	168.95	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05e)	0.9 x	5.27	112.21	0.38	0.8	0.76	123.77	
South (E-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	404.87	388.93	396.4	
Total summer gains	705.53	678.97	682.57	**(P5)**
Summer gain/loss ratio	4.18	4.02	4.04	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.43	0.43	0.43	
Threshold temperature	20.61	22.35	22.27	**(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 10:31:28

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:** E01 22 - Level 1
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)	25.08 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.00 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.3 kWh/m²	
		Fail

Excess energy = 1.25 kg/m² (04.2 %)

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	4.41m²
Windows facing: South	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: E01 22 - Level 1

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 227.44
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	43.3 m²	2.975 m

Living area:	23 m² (fraction 0.531)
Front of dwelling faces:	North

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04d	16mm or more	0.8	0.38	1.3	4.41	1
E-W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04d		Ext	South	1.728	2.55
E-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	19.04	7.95	11.09	0.18	0	False	14
Internal Elements							
Int	67.533						9
Party Elements							
P.Wall	64.558						20
P. Ceiling	43.3						100
Floor	43.3						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3993

Length	**Psi-value**		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.56	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	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: E01 22 - Level 1

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 227.44
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:	97.77	**(P1)**
Transmission heat loss coefficient:	19.4	
Summer heat loss coefficient:	117.19	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W04d)	0	1
South (E-W02c)	0	1

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (E-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	4.18	4.03	4.06	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.41	0.41	0.41	
Threshold temperature	20.59	22.34	22.27	**(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 10:31:28

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: E01 23 - Level 1

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)	25.41 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.34 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.3 kWh/m²	
		Fail

Excess energy = 1.21 kg/m² (04.0 %)

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:	2.30
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: E01 23 - Level 1

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 226.72
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	42 m²	2.975 m

Living area:	21.3 m² (fraction 0.507)
Front of dwelling faces:	North

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W04d	16mm or more	0.8	0.38	1.3	4.41	1
E-W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W04d		Ext	South	1.728	2.55
E-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	18.743	7.95	10.79	0.18	0	False	14
Internal Elements							
Int	61.761						9
Party Elements							
P.Wall	62.773						20
P. Ceiling	42						100
Floor	42						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3964

Length	**Psi-value**		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.36	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered 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

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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: E01 23 - Level 1

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 226.72
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:	94.84	**(P1)**
Transmission heat loss coefficient:	19.2	
Summer heat loss coefficient:	114.03	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W04d)	0	1
South (E-W02c)	0	1

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W04d)	0.9 x	4.41	112.21	0.38	0.8	0.76	103.57	
South (E-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	291.28	280.24	285.91	
Total summer gains	484.82	466.94	470.12	**(P5)**
Summer gain/loss ratio	4.25	4.09	4.12	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.41	0.41	0.41	
Threshold temperature	20.66	22.41	22.34	**(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 10:31:28

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: E01 24 - Level 1

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)	21.24 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.18 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.5 kWh/m²	
		Fail

Excess energy = 0.15 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	(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	5.62m²
Ventilation rate:	1.80
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: E01 24 - Level 1

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 223.02
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	69.5 m²	2.975 m

Living area:	29.2 m² (fraction 0.42)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W05a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05a	16mm or more	0.8	0.38	1.3	4.22	1
E-W02b	16mm or more	0.8	0.38	1.3	2.81	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05a		Ext	South	2.085	2.025
E-W02b		Ext	South	1.39	2.025

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	37.188	9.84	27.35	0.18	0	False	14
Internal Elements							
Int	135.66						9
Party Elements							
P.Wall	69.318						20
P. Ceiling	69.5						100
Floor	69.5						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.251

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

SAP Input

12.15	0.016	E4	Jamb
15.4	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.18	E16	Corner (normal)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
4.845	0.021	E3	Sill
23.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
23.2	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: 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: E01 24 - Level 1

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 223.02
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	122.82	**(P1)**
Transmission heat loss coefficient:	26.4	
Summer heat loss coefficient:	149.23	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (E-W05a)	0	1
South (E-W02b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (E-W05a)	0.85	0.9	1	0.76	**(P8)**
South (E-W02b)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (E-W05a)	0.9 x	4.22	112.21	0.38	0.8	0.76	99.11	
South (E-W02b)	0.9 x	5.62	112.21	0.38	0.8	0.76	131.99	
						Total	231.09	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	409.35	393.28	401	
Total summer gains	648.9	624.38	629	**(P5)**
Summer gain/loss ratio	4.35	4.18	4.21	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.44	0.44	0.44	
Threshold temperature	20.79	22.52	22.45	**(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 10:31:27

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:** E01 25 - Level 1
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)	24.92 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.29 kg/m²	**Fail**

Excess emissions = 0.37 kg/m² (1.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	48.9 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	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	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	2.81m²
Windows facing: East	6.61m²
Windows facing: East	4.41m²
Windows facing: East	4.12m²
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 25 - Level 1

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 250.1
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	82.7 m²	2.975 m

Living area:	35.9 m² (fraction 0.434)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W08d	16mm or more	0.8	0.38	1.3	6.61	1
E-W02b	16mm or more	0.8	0.38	1.3	2.81	1
E-W08d	16mm or more	0.8	0.38	1.3	6.61	1
E-W04d	16mm or more	0.8	0.38	1.3	4.41	1
E-W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W08d		Ext	South	2.591	2.55
E-W02b		Ext	South	1.39	2.025
E-W08d		Ext	East	2.591	2.55
E-W04d		Ext	East	1.728	2.55
E-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	60.988	24.56	36.43	0.18	0	False	14
Floor	82.7			0.05			110
Internal Elements							
Int	189.508						9

SAP Input

Party Elements

P.Wall	55.038	20
P. Ceiling	82.7	100

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0653

Length	Psi-value		
9.915	0.013	E2	Other lintels (including other steel lintels)
24.45	0.016	E4	Jamb
21.2	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	0.12	E18	Party wall between dwellings
2.975	0.18	E16	Corner (normal)
9.915	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: 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: E01 25 - Level 1

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 250.1
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:	178.62	**(P1)**
Transmission heat loss coefficient:	50.4	
Summer heat loss coefficient:	229.05	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (E-W08d)	0	1
South (E-W02b)	0	1
East (E-W08d)	0	1
East (E-W04d)	0	1
East (E-W03d)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (E-W08d)	0.85	0.9	1	0.76	**(P8)**
South (E-W02b)	0.85	0.9	1	0.76	**(P8)**
East (E-W08d)	0.85	0.9	1	0.76	**(P8)**
East (E-W04d)	0.85	0.9	1	0.76	**(P8)**
East (E-W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
South (E-W08d)	0.9 x	6.61	112.21	0.38	0.8	0.76	155.24	
South (E-W02b)	0.9 x	2.81	112.21	0.38	0.8	0.76	65.99	
East (E-W08d)	0.9 x	6.61	117.51	0.38	0.8	0.76	162.57	
East (E-W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (E-W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
						Total	593.59	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	455.84	437.66	445.88	
Total summer gains	1080.44	1031.25	991.74	**(P5)**
Summer gain/loss ratio	4.72	4.5	4.33	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	

SAP 2012 Overheating Assessment

Thermal mass temperature increment	0.25	0.25	0.25
Threshold temperature	20.97	22.65	22.38 **(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 10:31:27

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:** E01 26 - Level 1
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)	26.69 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.07 kg/m²	**Fail**

Excess emissions = 1.38 kg/m² (5.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	54.7 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	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	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	2.4m²
Windows facing: East	7.14m²
Windows facing: East	4.41m²
Windows facing: East	4.12m²
Windows facing: North	4.12m²
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 26 - Level 1

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 248.81
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	83.5 m²	2.975 m

Living area:	38.3 m² (fraction 0.459)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W01b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W08f	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W04d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W08f	16mm or more	0.8	0.38	1.3	7.14	1
E-W01b	16mm or more	0.8	0.38	1.3	2.4	1
E-W08f	16mm or more	0.8	0.38	1.3	7.14	1
E-W04d	16mm or more	0.8	0.38	1.3	4.41	1
E-W03d	16mm or more	0.8	0.38	1.3	4.12	1
E-W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W08f		Ext	North	2.8	2.55
E-W01b		Ext	North	0.94	2.55
E-W08f		Ext	East	2.8	2.55
E-W04d		Ext	East	1.728	2.55
E-W03d		Ext	East	1.615	2.55
E-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	54.234	29.33	24.9	0.18	0	False	14

SAP Input

Floor	83.5	0.05	110
Internal Elements			
Int	183.855		9
Party Elements			
P.Wall	61.88		20
P. Ceiling	83.5		100

Thermal bridges:

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

Length	Psi-value		
11.498	0.013	E2	Other lintels (including other steel lintels)
30.6	0.016	E4	Jamb
13.46	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	0.12	E18	Party wall between dwellings
2.975	0.18	E16	Corner (normal)
11.498	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 + 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: E01 26 - Level 1

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 248.81
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:	188.55	**(P1)**
Transmission heat loss coefficient:	53.9	
Summer heat loss coefficient:	242.45	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (E-W08f)	0	1
North (E-W01b)	0	1
East (E-W08f)	0	1
East (E-W04d)	0	1
East (E-W03d)	0	1
North (E-W03d)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (E-W08f)	0.85	0.9	1	0.76	**(P8)**
North (E-W01b)	0.85	0.9	1	0.76	**(P8)**
East (E-W08f)	0.85	0.9	1	0.76	**(P8)**
East (E-W04d)	0.85	0.9	1	0.76	**(P8)**
East (E-W03d)	0.85	0.9	1	0.76	**(P8)**
North (E-W03d)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (E-W08f)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
North (E-W01b)	0.9 x	2.4	81.19	0.38	0.8	0.76	40.78	
East (E-W08f)	0.9 x	7.14	117.51	0.38	0.8	0.76	175.61	
East (E-W04d)	0.9 x	4.41	117.51	0.38	0.8	0.76	108.46	
East (E-W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
North (E-W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	617.51	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	458.4	440.11	448.36	
Total summer gains	1118.63	1057.62	976.15	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	4.61	4.36	4.03	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.26	0.26	0.26	
Threshold temperature	20.87	22.52	22.08	**(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 10:31:27

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:** E01 27 - Level 1
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)	26.78 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.87 kg/m²	**Fail**

Excess emissions = 0.09 kg/m² (0.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.8 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	4.12m²
Windows facing: North	6.7m²
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: E01 27 - Level 1

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 223.25
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	54.6 m²	2.975 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	31.755	10.82	20.93	0.18	0	False	14
Internal Elements							
Int	73.155						9
Party Elements							
P.Wall	70.508						20
P. Ceiling	54.6						100
Floor	54.6						80

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.25			
	Length	**Psi-value**		
	10.2	0.013	E4	Jamb

SAP Input

4.243	0.016	E2	Other lintels (including other steel lintels)
8.9	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
4.243	0.021	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: 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: E01 27 - Level 1

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 223.25
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:	101.85	**(P1)**
Transmission heat loss coefficient:	25.1	
Summer heat loss coefficient:	126.92	**(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	4.3	4.07	3.85	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.44	0.44	0.44	
Threshold temperature	20.73	22.41	22.09	**(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 10:31:27

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: E01 28 - Level 1

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)	27.25 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.72 kg/m²	**Fail**

Excess emissions = 2.47 kg/m² (9.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	44.8 kWh/m²	**Fail**

Excess energy = 0.09 kg/m² (00.2 %)

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	4.12m²
Windows facing: North	7.14m²
Windows facing: East	7.14m²
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: E01 28 - Level 1

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 226.94
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	52 m²	2.975 m

Living area:	30.6 m² (fraction 0.588)
Front of dwelling faces:	South

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W03d		Ext	North	1.615	2.55
E-W08f		Ext	North	2.8	2.55
E-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	29.75	18.4	11.35	0.18	0	False	14
Internal Elements							
Int	116.025						9
Party Elements							
P.Wall	61.88						20
P. Ceiling	52						100
Floor	52						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2526

Length	Psi-value		
7.215	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)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
2.975	0.18	E16	Corner (normal)
7.215	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: E01 28 - Level 1

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 226.94
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:	132.73	**(P1)**
Transmission heat loss coefficient:	32.3	
Summer heat loss coefficient:	165.03	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W03d)	0	1
North (E-W08f)	0	1
East (E-W08f)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W03d)	0.85	0.9	1	0.76	**(P8)**
North (E-W08f)	0.85	0.9	1	0.76	**(P8)**
East (E-W08f)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (E-W08f)	0.9 x	7.14	81.19	0.38	0.8	0.76	121.33	
East (E-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	4.41	4.17	3.87	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.41	0.41	0.41	
Threshold temperature	20.83	22.49	22.08	**(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 10:31:27

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: E01 29 - Level 1

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)	24.34 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.02 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	37.9 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**
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: North	4.12m²
Windows facing: North	6.7m²
Windows facing: North	3.54m²
Ventilation rate:	1.80
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: E01 29 - Level 1

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 220.33
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	71 m²	2.975 m

Living area:	28.9 m² (fraction 0.407)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W03d	16mm or more	0.8	0.38	1.3	4.12	1
E-W06c	16mm or more	0.8	0.38	1.3	6.7	1
E-W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W03d		Ext	North	1.615	2.55
E-W06c		Ext	North	2.628	2.55
E-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	30.94	14.36	16.58	0.18	0	False	14
Internal Elements							
Int	126.438						9
Party Elements							
P.Wall	74.673						20
P. Ceiling	71						100
Floor	71						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2756

Length	Psi-value		
5.633	0.013	E2	Other lintels (including other steel lintels)
15.3	0.016	E4	Jamb
9.5	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
5.633	0.021	E3	Sill
25.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.2	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: 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: E01 29 - Level 1

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 220.33
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	125.47	**(P1)**
Transmission heat loss coefficient:	29.3	
Summer heat loss coefficient:	154.73	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W03d)	0	1
North (E-W06c)	0	1
North (E-W02c)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W03d)	0.85	0.9	1	0.76	**(P8)**
North (E-W06c)	0.85	0.9	1	0.76	**(P8)**
North (E-W02c)	0.85	0.9	1	0.76	**(P8)**

DRAFT

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
North (E-W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-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	4.39	4.15	3.9	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.46	0.46	0.46	
Threshold temperature	20.84	22.51	22.16	**(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 10:31:27

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:** E01 30 - Level 1
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 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.55 kg/m²	**Fail**

Excess emissions = 1.55 kg/m² (5.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.0 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	5.27m²
Windows facing: East	5.27m²
Windows facing: East	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: E01 30 - Level 1

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 222.87
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	53.6 m²	2.975 m

Living area:	28.8 m² (fraction 0.537)
Front of dwelling faces:	West

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W05e	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05c	16mm or more	0.8	0.38	1.3	5.27	1
E-W05c	16mm or more	0.8	0.38	1.3	5.27	1
E-W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05c		Ext	North	2.065	2.55
E-W05c		Ext	East	2.065	2.55
E-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	37.485	14.08	23.41	0.18	0	False	14
Internal Elements							
Int	100.555						9
Party Elements							
P.Wall	53.253						20
P. Ceiling	53.6						100
Floor	53.6						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.224

Length	Psi-value		
5.52	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
14.16	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.18	E16	Corner (normal)
2.975	0	E17	Corner (inverted internal area greater than external area)
5.52	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: E01 30 - Level 1

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	Yes
Number of storeys:	1
Front of dwelling faces:	West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 222.87
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:	121.03	**(P1)**
Transmission heat loss coefficient:	30	
Summer heat loss coefficient:	151.04	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W05c)	0	1
East (E-W05c)	0	1
East (E-W05e)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W05c)	0.85	0.9	1	0.76	**(P8)**
East (E-W05c)	0.85	0.9	1	0.76	**(P8)**
East (E-W05e)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W05c)	0.9 x	5.27	81.19	0.38	0.8	0.76	89.55	
East (E-W05c)	0.9 x	5.27	117.51	0.38	0.8	0.76	129.61	
East (E-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	4.43	4.2	3.96	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.44	0.44	0.44	
Threshold temperature	20.87	22.54	22.2	**(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 10:31:27

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 55.8m²

Site Reference : Station Hill - Block E

Plot Reference: E01 31 - Level 1

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)	26.21 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.10 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.8 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:	0.63	
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:	2.00
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: E01 31 - Level 1

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 224.38
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	55.8 m²	2.975 m

Living area:	31.1 m² (fraction 0.557)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
E-W06c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
E-W05c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W06c	16mm or more	0.8	0.38	1.3	6.7	1
E-W05c	16mm or more	0.8	0.38	1.3	5.27	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W06c		Ext	North	2.628	2.55
E-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	25.288	11.97	13.32	0.18	0	False	14
Internal Elements							
Int	103.054						9
Party Elements							
P.Wall	68.128						20
P. Ceiling	55.8						100
Floor	55.8						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3014

Length	**Psi-value**		
4.693	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
7.614	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	0.12	E18	Party wall between dwellings
4.693	0.021	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: E01 31 - Level 1

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 224.38
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:	109.56	**(P1)**
Transmission heat loss coefficient:	24.8	
Summer heat loss coefficient:	134.38	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W06c)	0	1
North (E-W05c)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (E-W06c)	0.85	0.9	1	0.76	**(P8)**
North (E-W05c)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (E-W06c)	0.9 x	6.7	81.19	0.38	0.8	0.76	113.85	
North (E-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	351.64	337.99	344.61	
Total summer gains	571.69	541.39	509.99	**(P5)**
Summer gain/loss ratio	4.25	4.03	3.8	**(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	22.02	**(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 10:31:27

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:** E01 32 - Level 1
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)	25.38 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.72 kg/m²	**Fail**

Excess emissions = 0.34 kg/m² (1.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	41.0 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	8.24m²
Windows facing: North	3.54m²
Ventilation rate:	1.60
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: E01 32 - Level 1

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 220.84
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.975 m

Living area:	30 m² (fraction 0.415)
Front of dwelling faces:	South

DRAFT

Opening types:

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

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
E-W03d	16mm or more	0.8	0.38	1.3	4.12	2
E-W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W03d		Ext	North	1.615	2.55
E-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	54.145	11.78	42.37	0.18	0	False	14
Internal Elements							
Int	142.503						9
Party Elements							
P.Wall	53.848						20
P. Ceiling	72.3						100
Floor	72.3						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.181

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)
5.95	0.12	E18	Party wall between dwellings
2.975	0.18	E16	Corner (normal)
4.62	0.021	E3	Sill
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: E01 32 - Level 1

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 220.84
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:	113.57	**(P1)**
Transmission heat loss coefficient:	32	
Summer heat loss coefficient:	145.55	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (E-W03d)	0	1
North (E-W05e)	0	1

Solar shading:

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

Solar gains:

Orientation		Area	Flux	g_	FF	Shading	Gains	
North (E-W03d)	0.9 x	8.24	81.19	0.38	0.8	0.76	140.02	
North (E-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	4.37	4.15	3.94	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.45	0.45	0.45	
Threshold temperature	20.83	22.5	22.2	**(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 10:31:26

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:** E01 33 - Level 1
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)	22.12 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	22.53 kg/m²	**Fail**

Excess emissions = 0.41 kg/m² (1.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.8 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:	0.61	
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:	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: E01 33 - Level 1

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 216.26
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	72.3 m²	2.975 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	54.145	11.78	42.37	0.18	0	False	14
Internal Elements							
Int	151.725						9
Party Elements							
P.Wall	53.848						20
P. Ceiling	70						100
Floor	70						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.181

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)
5.95	0.12	E18	Party wall between dwellings
2.975	0.18	E16	Corner (normal)
4.62	0.021	E3	Sill
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: E01 33 - Level 1

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 216.26
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:	134.86	**(P1)**
Transmission heat loss coefficient:	32	
Summer heat loss coefficient:	166.84	**(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	4.23	4.07	4.1	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.49	0.49	0.49	
Threshold temperature	20.72	22.46	22.39	**(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 10:31:26

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: E01 34 - Level 1

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)	20.5 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	19.58 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	32.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.9 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**
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:	1.70
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: E01 34 - Level 1

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 223.21
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	85 m²	2.975 m

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

DRAFT

Opening types:

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

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

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W02d		Ext	West	1.36	2.55
E-W02c		Ext	West	1.39	2.55
E-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	25.883	9.41	16.47	0.18	0	False	14
Internal Elements							
Int	160.353						9
Party Elements							
P.Wall	99.96						20
P. Ceiling	85						100
Floor	85						80

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.4076

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)
2.975	0	E17	Corner (inverted internal area greater than external area)
5.95	0.12	E18	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: E01 34 - Level 1

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 223.21
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:	141.86	**(P1)**
Transmission heat loss coefficient:	25.1	
Summer heat loss coefficient:	167.01	**(P2)**

Overhangs:

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

DRAFT

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (E-W02d)	0.9 x	3.47	117.51	0.38	0.8	0.76	85.34	
West (E-W02c)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
South (E-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	4.23	4.04	3.97	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.44	0.44	0.44	
Threshold temperature	20.67	22.38	22.21	**(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 10:31:26

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: E01 35 - Level 1

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)	28.8 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.85 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.1 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**
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:	0.63	
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:	2.20
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: E01 35 - Level 1

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 220.27
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	38.8 m²	2.975 m

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

DRAFT

Opening types:

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

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
E-W05e	16mm or more	0.8	0.38	1.3	3.54	1
E-W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
E-W05e		Ext	West	1.39	2.55
E-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	19.04	5.94	13.1	0.18	0	False	14
Internal Elements							
Int	49.683						9
Party Elements							
P.Wall	60.988						20
P. Ceiling	37.2						100
Floor	37.2						80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3685

Length	**Psi-value**		
2.33	0.013	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.016	E4	Jamb
8.14	0.14	E7	Party floor between dwellings (in blocks of flats)
5.95	0.12	E18	Party wall between dwellings
2.33	0.021	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: E01 35 - Level 1

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 220.27
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:	83.8	**(P1)**
Transmission heat loss coefficient:	16.7	
Summer heat loss coefficient:	100.52	**(P2)**

Overhangs:

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

Solar shading:

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

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
West (E-W05e)	0.9 x	3.54	117.51	0.38	0.8	0.76	87.07	
West (E-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	4.31	4.12	4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.46	0.46	0.46	
Threshold temperature	20.77	22.47	22.25	**(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 10:31:26

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 67.6m²

Site Reference : Station Hill - Block E

Plot Reference: E01 36 - Level 1

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)	27.65 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.44 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	50.5 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	0.05 (max. 0.25)	0.05 (max. 0.70)	**OK**
Roof	(no roof)		
Openings	1.27 (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:	0.63	
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	4.5m²
Ventilation rate:	1.10
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 36 - Level 1

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 251.87
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	67.6 m²	2.975 m

Living area:	25.7 m² (fraction 0.38)
Front of dwelling faces:	South

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
ED-03*	Manufacturer	Half glazed	double-glazed	Yes	Metal
CW12*	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
ED-03*	16mm or more mm	0.8	0.42	1.2	2.15	1
CW12*	16mm or more	0.8	0.38	1.3	4.5	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
ED-03*		Ext	North	1.0225	2.1
CW12*		Ext	North	1.8	2.5

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	30.345	6.65	23.69	0.18	0	False	14
Commercial	21.42	0	21.42	0.18	0.43	False	14
Floor	67.6			0.05			110
Internal Elements							
Int	130.603						9
Party Elements							
P.Wall	51.17						20
P. Ceiling	67.6						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0803

Length	Psi-value		
2.8225	0.067	E2	Other lintels (including other steel lintels)

SAP Input

9.2	0.045	E4	Jamb
29.155	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings
1.8	0.03	E3	Sill
17.2	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.2	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
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: E01 36 - Level 1

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 251.87
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	1.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	73	**(P1)**
Transmission heat loss coefficient:	28.9	
Summer heat loss coefficient:	101.95	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (CW12*)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North (CW12*)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
North (CW12*)	0.9 x	4.5	81.19	0.38	0.8	0.76	76.47	
						Total	76.47	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	403.1	387.45	395.45	
Total summer gains	485.82	463.92	457.62	**(P5)**
Summer gain/loss ratio	4.77	4.55	4.49	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.24	0.24	0.24	
Threshold temperature	21	22.69	22.53	**(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 10:31:26

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:** E01 37 - Level 1
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)	29.85 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.65 kg/m²	**Fail**

Excess emissions = 0.8 kg/m² (2.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	47.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	43.2 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	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	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	4.27m²
Windows facing: South	6.94m²
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E01 37 - Level 1

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 272.02
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	2.975 m

Living area:	22.3 m² (fraction 0.51)
Front of dwelling faces:	North

DRAFT

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
CW03*	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
CW*	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
CW03*	16mm or more	0.8	0.38	1.3	4.27	1
CW*	16mm or more	0.8	0.38	1.3	3.47	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
CW03*		Ext	South	1.6759	2.55
CW*		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	26.775	11.21	15.56	0.18	0	False	14
Commercial	20.075	0	20.08	0.18	0.43	False	14
Floor	43.7			0.05			110
Internal Elements							
Int	130.008						9
Party Elements							
P.Wall	52.063						20
P. Ceiling	43.7						100

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.1033			
	Length	**Psi-value**		
	4.3959	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
23.8	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.18	E16	Corner (normal)
2.975	0.18	E16	Corner (normal)
4.3959	0.021	E3	Sill
17.5	0	P3	Intermediate floor between dwellings (in blocks of flats)
17.5	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

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: E01 37 - Level 1

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 272.02
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:	94.39	**(P1)**
Transmission heat loss coefficient:	31.5	
Summer heat loss coefficient:	125.93	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (CW03*)	0	1
South (CW*)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (CW03*)	0.85	0.9	1	0.76	**(P8)**
South (CW*)	0.85	0.9	1	0.76	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (CW03*)	0.9 x	4.27	112.21	0.38	0.8	0.76	100.28	
South (CW*)	0.9 x	6.94	112.21	0.38	0.8	0.76	162.99	
						Total	263.27	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	298.57	287.21	292.99	
Total summer gains	571.47	550.48	552.74	**(P5)**
Summer gain/loss ratio	4.54	4.37	4.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.1	0.1	0.1	
Threshold temperature	20.63	22.37	22.29	**(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 10:31:26

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:** E02 01 - Level 2
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)	33.82 kg/m²	**Fail**

Excess emissions = 3.52 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	6.7m²
Windows facing: North	3.47m²
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: E02 01 - Level 2

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	3.47	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	North	2.628	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	17.133	10.17	6.96	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 = 0.3922

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

SAP Input

10.2	0.045	E4	Jamb
4.5	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
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: E02 01 - Level 2

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:	121.34	**(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	3.47	81.19	0.38	0.8	0.76	58.96	
						Total	172.81	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.73	265.36	270.79	
Total summer gains	462.7	438.18	411.3	**(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	21.74	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 10:31:26

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:** E02 02 - Level 2
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)	30.67 kg/m²	**Fail**

Excess emissions = 2.84 kg/m² (10.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.9 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	4.41m²
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: E02 02 - Level 2

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
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 = 0.3963

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	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: E02 02 - Level 2

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:	114.39	**(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	3.82	3.63	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	21.73	23.44	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 10:31:26

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:** E02 03 - Level 2
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)	28.4 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.47 kg/m²	**Fail**

Excess emissions = 2.07 kg/m² (7.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.1 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	(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:	2.30
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: E02 03 - Level 2

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	
E-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
E-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
E-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 = 0.3212

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
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
2.75	0.18	E16	Corner (normal)
15.3	0.045	E4	Jamb
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%

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: E02 03 - Level 2

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):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	91.21	**(P1)**
Transmission heat loss coefficient:	26.6	
Summer heat loss coefficient:	117.82	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W07a)	0	1
North (E-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 (E-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 (E-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	4.83	4.58	4.3	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.42	0.42	0.42	
Threshold temperature	21.26	22.9	22.52	**(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 10:31:26

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:** E02 04 - Level 2
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)	23.21 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.23 kg/m²	**Fail**

Excess emissions = 2.02 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: E02 04 - Level 2

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:	2019

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 = 0.3303

Length	Psi-value		
4.395	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
12.21	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings c
4.395	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

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: E02 04 - Level 2

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:	26.6	
Summer heat loss coefficient:	155.2	**(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 10:31:25

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:** E02 05 - Level 2
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)	27.39 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.96 kg/m²	**Fail**

Excess emissions = 1.57 kg/m² (5.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	56.3 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	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	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	4.33m²
Windows facing: East	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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E02 05 - Level 2

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:	2019

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:
W08b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08b	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	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08b	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
W08b	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	4.33	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08b		Ext	North	2.785	2.55
W03d		Ext	North	1.615	2.55
W08b		Ext	East	1.335	2.55
W01b		Ext	North	0.94	2.55
W04e		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	58.575	24.89	33.69	0.18	0	False	0

SAP Input

Floor	81.3	0.05	0
Internal Elements			
Int	172.975		9
Party Elements			
P.Wall	50.05		0
P. Ceiling	81.3		0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0839

Length	Psi-value		
9.763	0.067	E2	Other lintels (including other steel lintels)
30.6	0.045	E4	Jamb
11.54	0.14	E7	Party floor between dwellings (in blocks of flats)
11.54	0.32	E20	Exposed floor (normal)
5.5	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
9.763	0.03	E3	Sill
18.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.4	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: E02 05 - Level 2

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):	2.8 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	206.58	**(P1)**
Transmission heat loss coefficient:	52.6	
Summer heat loss coefficient:	259.2	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08b)	0	1
North (W03d)	0	1
East (W08b)	0	1
North (W01b)	0	1
East (W04e)	0	1
East (W02c)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08b)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**
East (W08b)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04e)	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	
North (W08b)	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 (W08b)	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 (W04e)	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	508.62	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	995.9	941.92	873.48	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.84	3.63	3.37	**(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	23.4	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 10:31:25

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:** E02 06 - Level 2
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)	23.91 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.42 kg/m²	**Fail**

Excess emissions = 3.51 kg/m² (14.7 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.1 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	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	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	3.54m²
Windows facing: East	3.4m²
Windows facing: South	2.4m²
Windows facing: East	4.33m²
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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E02 06 - Level 2

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:	2019

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	
W02c	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	
W02c	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
W02c	16mm or more	0.8	0.38	1.3	3.54	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	4.33	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08a		Ext	South	2.785	2.55
W02c		Ext	South	1.39	2.55
W08a		Ext	East	1.335	2.55
W01b		Ext	South	0.94	2.55
W04e		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	58.575	24.31	34.27	0.18	0	False	0

SAP Input

Floor	81.3	0.05	0
Internal Elements			
Int	179.85		9
Party Elements			
P.Wall	50.05		0
P. Ceiling	81.3		0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0796

Length	Psi-value		
9.538	0.067	E2	Other lintels (including other steel lintels)
30.6	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)
9.538	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: E02 06 - Level 2

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):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	199.21	**(P1)**
Transmission heat loss coefficient:	51.4	
Summer heat loss coefficient:	250.61	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08a)	0.67	0.52
South (W02c)	0	1
East (W08a)	0	1
South (W01b)	0	1
East (W04e)	0	1
East (W02c)	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 (W02c)	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 (W02c)	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 (W02c)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
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	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	494.3	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	970.57	927.6	899.52	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.87	3.7	3.59	**(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	23.25	**(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 10:31:25

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:** E02 07 - Level 2
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)	28.9 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.38 kg/m²	**Fail**

Excess emissions = 3.48 kg/m² (12 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.7 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	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	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
Floors U-value	0.05 W/m²K

SAP Input

Property Details: E02 07 - Level 2

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:	2019

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	
W01b	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
W01b	16mm or more	0.8	0.38	1.3	2.4	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05d		Ext	South	2.065	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	17.875	7.67	10.2	0.18	0	False	0
Floor	38.3			0.05			0
Internal Elements							
Int	56.788						9
Party Elements							
P.Wall	55.825						0
P. Ceiling	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1293

Length	Psi-value		
3.005	0.067	E1	Steel lintel with perforated steel base plate

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
3.005	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: E02 07 - Level 2

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:	as detailed below
Thermal mass parameter:	Calculated 13.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	83.42	**(P1)**
Transmission heat loss coefficient:	20.5	
Summer heat loss coefficient:	103.91	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0.67	0.52
South (W01b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	0.52	0.36	**(P8)**
South (W01b)	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	0.36	57.64	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	114	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.73	265.36	270.79	
Total summer gains	393.91	379.37	383.27	**(P5)**
Summer gain/loss ratio	3.79	3.65	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	21.7	23.46	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 10:31:25

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: E02 08 - Level 2

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)	24.93 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.74 kg/m²	**Fail**

Excess emissions = 4.81 kg/m² (19.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	34.2 kWh/m²	**Fail**

Excess energy = 4.46 kg/m² (15.0 %)

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	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: E02 08 - Level 2

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:	2019

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 = 0.3206

Length	**Psi-value**		
3.058	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)
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
3.058	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

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: E02 08 - Level 2

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:	128.01	**(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 10:31:25

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: E02 09 - Level 2

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)	24.12 kg/m²	**Fail**

Excess emissions = 3.81 kg/m² (18.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.1 kWh/m²	**Fail**

Excess energy = 3.27 kg/m² (12.2 %)

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:	0.61	
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:	2.40
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: E02 09 - Level 2

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:	2019

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	3.54	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	30.525	10.62	19.9	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 = 0.3162

Length	Psi-value		
4.17	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
14.2	0.14	E7	Party floor between dwellings (in blocks of flats)
2.975	0.12	E18	Party wall between dwellings
2.975	0.12	E25	Staggered party wall between dwellings c
4.17	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: E02 09 - Level 2

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):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	147.45	**(P1)**
Transmission heat loss coefficient:	26.4	
Summer heat loss coefficient:	173.81	**(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	401.96	386.18	393.69	
Total summer gains	660.5	635.59	639.77	**(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	1.89	1.89	1.89	
Threshold temperature	21.69	23.44	23.37	**(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 10:31:25

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: E02 10 - Level 2

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)	21.02 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.66 kg/m²	**Fail**

Excess emissions = 3.64 kg/m² (17.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.7 kWh/m²	**Fail**

Excess energy = 2.45 kg/m² (08.4 %)

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	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: E02 10 - Level 2

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:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	67.7 m²	2.975 m

Living area:	28.4 m² (fraction 0.419)
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	29.975	10.62	19.36	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 = 0.3231

Length	Psi-value		
4.17	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
13.8	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
4.17	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: E02 10 - Level 2

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):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	152.87	**(P1)**
Transmission heat loss coefficient:	26.3	
Summer heat loss coefficient:	179.16	**(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	401.96	386.18	393.69	
Total summer gains	660.5	635.59	639.77	**(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	1.89	1.89	1.89	
Threshold temperature	21.58	23.34	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 10:31:25

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:** E02 11 - Level 2
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)	24.58 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.90 kg/m²	**Fail**

Excess emissions = 3.32 kg/m² (13.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.3 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: 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: E02 11 - Level 2

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:	2019

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:
W06c	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:
W06c	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:
W06c		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	21.175	9.05	12.12	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 = 0.367

Length	Psi-value		
3.988	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
3.988	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: E02 11 - Level 2

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:	21.1	
Summer heat loss coefficient:	148.49	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	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 (W06c)	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	326.71	314.14	320.38	
Total summer gains	562.99	536.73	516.2	**(P5)**
Summer gain/loss ratio	3.79	3.61	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	23.43	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 10:31:24

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:** E02 12 - Level 2
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)	24.24 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.49 kg/m²	**Fail**

Excess emissions = 3.25 kg/m² (13.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.8 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	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: E02 12 - Level 2

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:	2019

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:
W06c	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:
W06c	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:
W06c		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
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 = 0.3793

Length	Psi-value		
3.958	0.067	E2	Other lintels (including other steel lintels)

SAP Input

8.55	0.045	E4	Jamb
7.1	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
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
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: E02 12 - Level 2

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	
Summer heat loss coefficient:	151.1	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	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 (W06c)	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	3.74	3.57	3.44	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.92	1.92	1.92	
Threshold temperature	21.66	23.39	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 10:31:24

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: E02 13 - Level 2

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)	24.46 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.98 kg/m²	**Fail**

Excess emissions = 3.52 kg/m² (14.4 %)

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:	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: E02 13 - Level 2

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:	2019

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

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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	20.35	10.24	10.11	0.18	0	False	0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	61.6						0
P. Ceiling	49.7						0
Floor	49.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3851

Length	Psi-value		
4.018	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
4.018	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

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: E02 13 - Level 2

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:	22.3	
Summer heat loss coefficient:	156.79	**(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	3.82	3.64	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	21.74	23.46	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 10:31:24

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:** E02 14 - Level 2
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)	30.02 kg/m²	**Fail**

Excess emissions = 0.98 kg/m² (3.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.7 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	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: E02 14 - Level 2

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 219.11
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

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	14
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	56.375						20
P. Ceiling	40.5						100
Floor	40.5						80

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
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

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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: E02 14 - Level 2

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 219.11
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:	87.87	**(P1)**
Transmission heat loss coefficient:	23.1	
Summer heat loss coefficient:	110.97	**(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	4.33	4.1	3.86	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.47	0.47	0.47	
Threshold temperature	20.79	22.46	22.12	**(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 10:31:24

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:** E02 15 - Level 2
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)	27.67 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.54 kg/m²	**Fail**

Excess emissions = 2.87 kg/m² (10.4 %)

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	4.33m²
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: E02 15 - Level 2

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:	2019

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	4.33	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	20.9	7.87	13.03	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 = 0.3874

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

SAP Input

10.2	0.045	E4	Jamb
9.2	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)
3.088	0.03	E3	Sill
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
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: E02 15 - Level 2

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:	20.2	
Summer heat loss coefficient:	114.04	**(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	296.01	284.77	290.52	
Total summer gains	440.69	418.5	399.25	**(P5)**
Summer gain/loss ratio	3.86	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 10:31:24

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:** E02 16 - Level 2
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)	28.18 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.57 kg/m²	**Fail**

Excess emissions = 3.39 kg/m² (12 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.1 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	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: E02 16 - Level 2

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:	2019

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	52.525						0
P. Ceiling	43.4						0
Floor	43.4						40

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3287

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
15.3	0.045	E4	Jamb
7.6	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
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

DRAFT

SAP 2012 Overheating Assessment

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

Property Details: E02 16 - Level 2

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:	25.8	
Summer heat loss coefficient:	136.1	**(P2)**

Overhangs:

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

DRAFT

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	4.18	3.96	3.71	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.63	1.63	1.63	
Threshold temperature	21.8	23.48	23.14	**(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 10:31:24

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 71.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E02 17 - Level 2
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)	23.41 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.23 kg/m²	**Fail**

Excess emissions = 1.82 kg/m² (7.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.5 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	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: E02 17 - Level 2

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 16.32
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	71.9 m²	2.75 m

Living area:	30.2 m² (fraction 0.42)
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	31.625	13.78	17.85	0.18	0	False	0
Internal Elements							
Int	130.35						9
Party Elements							
P.Wall	69.575						0
P. Ceiling	71.9						0
Floor	71.9						0

Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.306			
	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
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: E02 17 - Level 2

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 16.32
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:	143.55	**(P1)**
Transmission heat loss coefficient:	29.9	
Summer heat loss coefficient:	173.47	**(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	417.97	401.45	409.11	
Total summer gains	671.3	635.6	599.49	**(P5)**
Summer gain/loss ratio	3.87	3.66	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	21.76	23.45	23.14	**(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 10:31:24

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 80.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E02 18 - Level 2
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)	26.26 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.19 kg/m²	**Fail**

Excess emissions = 1.93 kg/m² (7.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	52.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.6 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	0.10 (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	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:	2.30
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E02 18 - Level 2

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 18.35
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	80.8 m²	2.75 m

Living area:	36 m² (fraction 0.446)
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	56.65	18.29	38.36	0.18	0	False	0
Floor	80.8			0.1			0
Internal Elements							
Int	164.725						9
Party Elements							
P.Wall	50.05						0
P. Ceiling	80.8						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.072

Length	Psi-value		
7.175	0.013	E2	Other lintels (including other steel lintels)
20.4	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)
7.175	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
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: E02 18 - Level 2

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 18.35
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:	168.65	**(P1)**
Transmission heat loss coefficient:	47.5	
Summer heat loss coefficient:	216.14	**(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	449.62	431.72	439.84	
Total summer gains	844.95	800.66	752.37	**(P5)**
Summer gain/loss ratio	3.91	3.7	3.48	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.78	23.48	23.15	**(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 10:31:24

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 80.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E02 19 - Level 2
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)	23.87 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.88 kg/m²	**Fail**

Excess emissions = 4.01 kg/m² (16.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	40.7 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	0.10 (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	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	4.33m²
Windows facing: East	7.14m²
Windows facing: East	4.12m²
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E02 19 - Level 2

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 18.59
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	80.8 m²	2.75 m

Living area:	36 m² (fraction 0.446)
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	7.1	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	2.785	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	56.65	22.69	33.96	0.18	0	False	0
Floor	80.8			0.1			0
Internal Elements							
Int	166.925						9
Party Elements							
P.Wall	50.05						0
P. Ceiling	80.8						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0684

Length	Psi-value		
8.898	0.013	E2	Other lintels (including other steel lintels)
20.4	0.016	E4	Jamb
23.2	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)
8.898	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
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: E02 19 - Level 2

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 18.59
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:	212.65	**(P1)**
Transmission heat loss coefficient:	51.6	
Summer heat loss coefficient:	264.28	**(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	7.1	112.21	0.38	0.8	0.76	166.74	
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	545.37	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	449.62	431.72	439.84	
Total summer gains	1021.85	977.09	948.33	**(P5)**
Summer gain/loss ratio	3.87	3.7	3.59	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.74	23.47	23.26	**(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 10:31:23

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 49.8m²

Site Reference : Station Hill - Block E

Plot Reference: E02 20 - Level 2

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)	22.72 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.02 kg/m²	**Fail**

Excess emissions = 3.3 kg/m² (14.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.0 kWh/m²	**Fail**

Excess energy = 2.95 kg/m² (11.3 %)

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	3.54m²
Windows facing: South	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: E02 20 - Level 2

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 12.23
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	49.8 m²	2.75 m

Living area:	28.8 m² (fraction 0.578)
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	1

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	22.015	7.08	14.93	0.18	0	False	0
Internal Elements							
Int	67.65						9
Party Elements							
P.Wall	66.045						0
P. Ceiling	49.8						0
Floor	49.8						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.2618

Length	Psi-value		
2.78	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
2.78	0.021	E3	Sill
14.8	0	P3	Intermediate floor between dwellings (in blocks of flats)
14.8	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

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: E02 20 - Level 2

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 12.23
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:	112.98	**(P1)**
Transmission heat loss coefficient:	17.2	
Summer heat loss coefficient:	130.18	**(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	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	166.27	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	325.71	313.23	319.58	
Total summer gains	498.07	479.51	483.64	**(P5)**
Summer gain/loss ratio	3.83	3.68	3.71	**(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 10:31:23

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 40.4m²

Site Reference : Station Hill - Block E

Plot Reference: E02 21 - Level 2

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)	26.34 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.52 kg/m²	**Fail**

Excess emissions = 4.18 kg/m² (15.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.8 kWh/m²	**Fail**

Excess energy = 3.28 kg/m² (10.7 %)

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	3.54m²
Windows facing: South	2.4m²
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: E02 21 - Level 2

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 12.58
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

Floor Location:	Floor area:	Storey height:
Floor 0	40.4 m²	2.75 m

Living area:	31.8 m² (fraction 0.787)
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	South	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	23.1	5.94	17.16	0.18	0	False	0
Internal Elements							
Int	56.485						9
Party Elements							
P.Wall	56.823						0
P. Ceiling	40.4						0
Floor	40.4						0

Thermal bridges:

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

Length	Psi-value		
2.33	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
2.33	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
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: E02 21 - Level 2

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 12.58
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:	95.32	**(P1)**
Transmission heat loss coefficient:	18.1	
Summer heat loss coefficient:	113.43	**(P2)**

Overhangs:

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

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	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**	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	139.5	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	284.8	274.08	279.74	
Total summer gains	429.41	413.58	417.38	**(P5)**
Summer gain/loss ratio	3.79	3.65	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	21.7	23.46	23.39	**(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 10:31:23

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:** E02 22 - Level 2

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 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.24 kg/m²	**Fail**

Excess emissions = 1.24 kg/m² (6.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	27.6 kWh/m²	**Fail**

Excess energy = 1.41 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:	0.61	
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:	2.10
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: E02 22 - Level 2

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:	2019

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

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
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 = 0.3169

Length	Psi-value		
4.17	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
11.86	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
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 + 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: E02 22 - Level 2

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):	2.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	131.5	**(P1)**
Transmission heat loss coefficient:	25	
Summer heat loss coefficient:	156.51	**(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	4.25	4.09	4.12	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.39	1.39	1.39	
Threshold temperature	21.65	23.39	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 10:31:23

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:** E02 23 - Level 2

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)	19.88 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.06 kg/m²	**Fail**

Excess emissions = 3.18 kg/m² (16 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	25.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.2 kWh/m²	**Fail**

Excess energy = 2.69 kg/m² (10.5 %)

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	3.54m²
Windows facing: South	7.08m²
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: E02 23 - Level 2

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:	2019

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
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 = 0.2602

Length	Psi-value		
4.17	0.013	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.016	E4	Jamb
2.12	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
4.17	0.021	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
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: E02 23 - Level 2

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):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	148.32	**(P1)**
Transmission heat loss coefficient:	23.5	
Summer heat loss coefficient:	171.8	**(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	3.85	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 10:31:23

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: E02 24 - Level 2

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)	21.5 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.63 kg/m²	**Fail**

Excess emissions = 4.13 kg/m² (19.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.4 kWh/m²	**Fail**

Excess energy = 2.05 kg/m² (06.8 %)

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	3.54m²
Windows facing: South	7.08m²
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: E02 24 - Level 2

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:	2019

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
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 = 0.2171

Length	Psi-value		
4.17	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
24.66	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
4.17	0.03	E3	Sill
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: E02 24 - Level 2

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):	2.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	143.75	**(P1)**
Transmission heat loss coefficient:	29.2	
Summer heat loss coefficient:	172.98	**(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	3.78	3.64	3.66	**(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	23.42	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 10:31:23

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:** E02 25 - Level 2
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)	23.95 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.27 kg/m²	**Fail**

Excess emissions = 3.32 kg/m² (13.9 %)

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	3.47m²
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: E02 25 - Level 2

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:	2019

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	3.47	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W06c		Ext	East	2.628	2.55
W02C		Ext	East	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	10.17	10.73	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 = 0.3628

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

SAP Input

10.2	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
3.988	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: E02 25 - Level 2

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:	159.72	**(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	3.47	117.51	0.38	0.8	0.76	85.34	
						Total	250.13	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	336.28	323.29	329.67	
Total summer gains	601.8	573.42	549.72	**(P5)**
Summer gain/loss ratio	3.77	3.59	3.44	**(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	23.41	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 10:31:23

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:** E02 26 - Level 2
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:	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: E02 26 - Level 2

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:	2019

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 = 0.3825

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: E02 26 - Level 2

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:	22.4	
Summer heat loss coefficient:	156.89	**(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	3.81	3.63	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	21.73	23.45	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 10:31:23

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:** E02 27 - Level 2
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)	29.30 kg/m²	**Fail**

Excess emissions = 3.39 kg/m² (13.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.7 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:	0.63	
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	3.54m²
Ventilation rate:	2.90
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: E02 27 - Level 2

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:	2019

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	
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 = 0.4261

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.56	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
3.118	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 + 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: E02 27 - Level 2

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

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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 10:31:22

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: E02 28 - Level 2

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)	19.84 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.28 kg/m²	**Fail**

Excess emissions = 3.44 kg/m² (17.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	25.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.6 kWh/m²	**Fail**

Excess energy = 3.12 kg/m² (12.2 %)

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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	3.54m²
Windows facing: South	7.08m²
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: E02 28 - Level 2

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:	2019

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	
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	27.5	10.62	16.88	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 = 0.2904

Length	Psi-value		
4.17	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	0.045	E4	Jamb
1.66	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
4.17	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: E02 28 - Level 2

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:	24.1	
Summer heat loss coefficient:	173.34	**(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	405.17	389.25	396.82	
Total summer gains	663.71	638.66	642.9	**(P5)**
Summer gain/loss ratio	3.83	3.68	3.71	**(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	23.47	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 10:31:22

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: E02 29 - Level 2

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 %)

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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	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: E02 29 - Level 2

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:	2019

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 = 0.4289

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.56	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
21.7	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: E02 29 - Level 2

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:	129.13	**(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 10:31:22

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: E02 30 - Level 2

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)	29.25 kg/m²	**Fail**

Excess emissions = 4.59 kg/m² (18.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.8 kWh/m²	**Fail**

Excess energy = 5.39 kg/m² (19.7 %)

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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**

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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

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10 Key features

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

SAP Input

Property Details: E02 30 - Level 2

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:	2019

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	
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	17.325	7.95	9.38	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 = 0.429

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.56	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
3.118	0.03	E3	Sill
21.22	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.22	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

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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: E02 30 - Level 2

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):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	110.53	**(P1)**
Transmission heat loss coefficient:	18.9	
Summer heat loss coefficient:	129.48	**(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	291.28	280.24	285.91	
Total summer gains	484.82	466.94	470.12	**(P5)**
Summer gain/loss ratio	3.74	3.61	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

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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 10:31:22

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: E02 31 - Level 2

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)	23.62 kg/m²	**Fail**

Excess emissions = 3.33 kg/m² (16.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.3 kWh/m²	**Fail**

Excess energy = 2.19 kg/m² (08.1 %)

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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**

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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	5.62m²
Ventilation rate:	2.30
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: E02 31 - Level 2

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:	2019

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

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W05a	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02b	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
W02b	16mm or more	0.8	0.38	1.3	2.81	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05a		Ext	South	2.035	2.025
W02b		Ext	South	1.39	2.025

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.375	9.74	24.64	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 = 0.255

Length	Psi-value		
4.815	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.815	0.021	E3	Sill
12.15	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	0.12	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

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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: E02 31 - Level 2

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:	25.2	
Summer heat loss coefficient:	170.3	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05a)	0	1
South (W02b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05a)	0.85	0.9	1	0.76	**(P8)**
South (W02b)	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 (W02b)	0.9 x	5.62	112.21	0.38	0.8	0.76	131.99	
						Total	228.75	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	409.39	393.32	401.04	
Total summer gains	646.5	622.06	626.73	**(P5)**
Summer gain/loss ratio	3.8	3.65	3.68	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.69	23.44	23.37	**(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 10:31:22

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:** E02 32 - Level 2
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)	21.47 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.56 kg/m²	**Fail**

Excess emissions = 4.09 kg/m² (19 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	37.0 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	(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	2.81m²
Windows facing: East	6.61m²
Windows facing: East	4.41m²
Windows facing: East	4.12m²
Ventilation rate:	3.10
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: E02 32 - Level 2

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:	2019

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

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Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W08d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W02b	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	
W03d	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
W02b	16mm or more	0.8	0.38	1.3	2.81	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
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08d		Ext	South	2.591	2.55
W02b		Ext	South	1.39	2.025
W08d		Ext	East	2.591	2.55
W04d		Ext	East	1.728	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	56.375	24.56	31.82	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 = 0.156

Length	Psi-value		
9.915	0.013	E2	Other lintels (including other steel lintels)
9.915	0.021	E3	Sill
24.45	0.016	E4	Jamb
21.2	0.14	E7	Party floor between dwellings (in blocks of flats)
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

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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

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SAP 2012 Overheating Assessment

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

Property Details: E02 32 - Level 2

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):	3.1 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	232.66	**(P1)**
Transmission heat loss coefficient:	44.9	
Summer heat loss coefficient:	277.53	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08d)	0	1
South (W02b)	0	1
East (W08d)	0	1
East (W04d)	0	1
East (W03d)	0	1

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Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08d)	0.85	0.9	1	0.76	**(P8)**
South (W02b)	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 (W03d)	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 (W02b)	0.9 x	2.81	112.21	0.38	0.8	0.76	65.99	
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 (W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
						Total	593.59	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	455.84	437.66	445.88	
Total summer gains	1080.44	1031.25	991.74	**(P5)**
Summer gain/loss ratio	3.89	3.72	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	21.76	23.48	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 10:31:22

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:** E02 33 - Level 2
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)	23.23 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.38 kg/m²	**Fail**

Excess emissions = 3.15 kg/m² (13.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.4 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	7.14m²
Windows facing: North	2.4m²
Windows facing: East	3.53m²
Windows facing: East	4.41m²
Windows facing: East	4.12m²
Windows facing: North	4.12m²
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: E02 33 - Level 2

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:	2019

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	
W03d	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	2.4	1
W08f	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
W03d	16mm or more	0.8	0.38	1.3	4.12	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	0.94	2.55
W08f		Ext	East	1.385	2.55
W04d		Ext	East	1.728	2.55
W03d		Ext	East	1.615	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	50.133	25.72	24.41	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 = 0.1753

Length	Psi-value		
10.083	0.013	E2	Other lintels (including other steel lintels)
10.083	0.021	E3	Sill
30.6	0.016	E4	Jamb
16.46	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
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: E02 33 - Level 2

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):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	219.75	**(P1)**
Transmission heat loss coefficient:	45	
Summer heat loss coefficient:	264.72	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08f)	0	1
North (W01b)	0	1
East (W08f)	0	1
East (W04d)	0	1
East (W03d)	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 (W03d)	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	2.4	81.19	0.38	0.8	0.76	40.78	
East (W08f)	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 (W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	528.73	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	458.4	440.11	448.36	
Total summer gains	1024.38	968.84	898.04	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.87	3.66	3.39	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.87	1.87	1.87	
Threshold temperature	21.74	23.43	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 10:31:22

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:** E02 34 - Level 2
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)	25.5 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.09 kg/m²	**Fail**

Excess emissions = 2.59 kg/m² (10.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.5 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	4.12m²
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: E02 34 - Level 2

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:	2019

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	6.62	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	North	1.615	2.55
W06c		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	23.925	10.74	13.18	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 = 0.3515

Length	Psi-value		
4.213	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.213	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	E25	Staggered party wall between dwellings
2.75	0.12	E18	Party wall between dwellings
2.75	0.18	E16	Corner (normal)
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: E02 34 - Level 2

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:	24.1	
Summer heat loss coefficient:	142.97	**(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	6.62	81.19	0.38	0.8	0.76	112.49	
						Total	182.5	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	346.39	332.96	339.5	
Total summer gains	543.83	515.46	487.88	**(P5)**
Summer gain/loss ratio	3.8	3.61	3.41	**(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	23.13	**(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 10:31:22

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: E02 35 - Level 2

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:	3.40
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: E02 35 - Level 2

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:	2019

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)
5.5	0.12	E18	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

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: E02 35 - Level 2

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):	3.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	160.45	**(P1)**
Transmission heat loss coefficient:	31.8	
Summer heat loss coefficient:	192.24	**(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	3.79	3.58	3.32	**(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	23.4	23.04	**(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 10:31:21

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:** E02 36 - Level 2
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)	24.77 kg/m²	**Fail**

Excess emissions = 1.46 kg/m² (6.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.9 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:	0.61	
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: E02 36 - Level 2

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:	2019

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 = 0.2682

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
0.4	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
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: E02 36 - Level 2

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	
Summer heat loss coefficient:	176.17	**(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	3.85	3.65	3.43	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.74	23.43	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 10:31:21

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:** E02 37 - Level 2
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)	26.2 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.09 kg/m²	**Fail**

Excess emissions = 3.89 kg/m² (14.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.8 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: North	5.27m²
Windows facing: East	5.27m²
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: E02 37 - Level 2

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:	2019

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

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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 = 0.2499

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
14.16	0.14	E7	Party floor between dwellings (in blocks of flats)
2.75	0.12	E25	Staggered party wall between dwellings
2.75	0.18	E16	Corner (normal)
2.75	0.12	E18	Party wall between dwellings
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: E02 37 - Level 2

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):	3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	145.93	**(P1)**
Transmission heat loss coefficient:	29.8	
Summer heat loss coefficient:	175.69	**(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	3.81	3.61	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	21.7	23.41	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 10:31:21

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:** E02 38 - Level 2
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)	25.63 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.40 kg/m²	**Fail**

Excess emissions = 2.77 kg/m² (10.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.2 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:	0.63	
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: E02 38 - Level 2

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:	2019

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 = 0.3617

Length	**Psi-value**		
2.065	0.013	E2	Other lintels (including other steel lintels)

SAP Input

2.065	0.021	E3	Sill
2.55	0.016	E4	Jamb
2.6	0.067	E2	Other lintels (including other steel lintels)
2.6	0.03	E3	Sill
2.55	0.045	E4	Jamb
13	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

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: E02 38 - Level 2

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:	25.3	
Summer heat loss coefficient:	149.17	**(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	5.27	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	3.38	**(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 10:31:21

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:** E02 39 - Level 2
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)	24.65 kg/m²	**Fail**

Excess emissions = 0.3 kg/m² (1.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.0 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	8.24m²
Windows facing: North	3.54m²
Ventilation rate:	1.70
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: E02 39 - Level 2

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 218.64
Water use <= 125 litres/person/day:	True
PCDF Version:	493

Property description:

Dwelling type:	Flat
Detachment:	
Year Completed:	2019

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	4.12	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	14
Internal Elements							
Int	140.25						9
Party Elements							
P.Wall	49.775						20
P. Ceiling	72.3						100
Floor	72.3						80

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)
2.75	0.18	E16	Corner (normal)
5.5	0.12	E18	Party wall between dwellings
4.62	0.021	E3	Sill
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: E02 39 - Level 2

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 218.64
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:	111.54	**(P1)**
Transmission heat loss coefficient:	31.1	
Summer heat loss coefficient:	142.69	**(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	4.46	4.23	4.02	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.47	0.47	0.47	
Threshold temperature	20.93	22.6	22.29	**(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 10:31:21

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: E02 40 - Level 2

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:	2.30
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: E02 40 - Level 2

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:	2019

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

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: E02 40 - Level 2

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):	2.3 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	150.91	**(P1)**
Transmission heat loss coefficient:	31.1	
Summer heat loss coefficient:	182.06	**(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	3.88	3.73	3.76	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.61	1.61	1.61	
Threshold temperature	21.49	23.25	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 10:31:21

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:** E02 41 - Level 2
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)	19.62 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.46 kg/m²	**Fail**

Excess emissions = 1.84 kg/m² (9.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	27.9 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	2.32m²
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: E02 41 - Level 2

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:	2019

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	2.32	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	0.91	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	23.925	9.33	14.59	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 = 0.4391

Length	Psi-value		
3.66	0.013	E2	Other lintels (including other steel lintels)
3.66	0.021	E3	Sill
15.3	0.016	E4	Jamb
10.08	0.14	E7	Party floor between dwellings (in blocks of flats)
5.5	0.12	E18	Party wall between dwellings
2.75	0	E17	Corner (inverted internal area greater than external area)
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: E02 41 - Level 2

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:	186.65	**(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	2.32	112.21	0.38	0.8	0.76	54.49	
						Total	226.89	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	464.86	446.5	455.39	
Total summer gains	704.36	673.4	660.82	**(P5)**
Summer gain/loss ratio	3.77	3.61	3.54	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.67	23.4	23.24	**(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 10:31:21

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:** E02 42 - Level 2
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: E02 42 - Level 2

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:	2019

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: E02 42 - Level 2

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 10:31:21

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:** E03 01 - 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)	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: E03 01 - 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 11.18
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: E03 01 - Level 3

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 10:31:20

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:** E03 02 - 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)	27.84 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.69 kg/m²	**Fail**

Excess emissions = 2.85 kg/m² (10.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.0 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:	0.63	
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:	2.50
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: E03 02 - 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 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
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 = 0.3976

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: E03 02 - Level 3

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:	19.4	
Summer heat loss coefficient:	114.41	**(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	3.82	3.63	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	21.73	23.44	23.17	**(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 10:31:20

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:** E03 03 - 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)	28.23 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	32.62 kg/m²	**Fail**

Excess emissions = 4.39 kg/m² (15.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.5 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):	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:	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: E03 03 - 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 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	
E-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
E-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
E-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	24.475	12.8	11.68	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 = 0.336

Length	Psi-value		
5.02	0.067	E2	Other lintels (including other steel lintels)
7.8	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)
15.3	0.045	E4	Jamb
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:

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: E03 03 - Level 3

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):	3.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	126.9	**(P1)**
Transmission heat loss coefficient:	26.1	
Summer heat loss coefficient:	153.05	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North (E-W07A)	0	1
North (E-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 (E-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 (E-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	3.72	3.53	3.31	**(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	23.31	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 10:31:20

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:** E03 04 - 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)	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:	2.20
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: E03 04 - 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 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)
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
4.395	0.03	E3	Sill
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: E03 04 - Level 3

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):	2.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	134.76	**(P1)**
Transmission heat loss coefficient:	24.7	
Summer heat loss coefficient:	159.44	**(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	3.81	3.61	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	21.69	23.39	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 10:31:20

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:** E03 05 - 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)	23.93 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.57 kg/m²	**Fail**

Excess emissions = 2.64 kg/m² (11 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	43.0 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	4.33m²
Windows facing: East	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: E03 05 - 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 217.26
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	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:
W08b	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W03d	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	
W08b	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	
W02c	Manufacturer	Windows	low-E, En = 0.05, soft coat	No	

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
W08b	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
W08b	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	4.33	1
W02c	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08b		Ext	North	2.785	2.55
W03d		Ext	North	1.615	2.55
W08b		Ext	East	1.335	2.55
W01b		Ext	North	0.94	2.55
W04e		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	58.575	24.89	33.69	0.18	0	False	14

SAP Input

Internal Elements		
Int	172.975	9
Party Elements		
P.Wall	50.05	20
P. Ceiling	81.3	100
Floor	81.3	80

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1891

Length	Psi-value		
9.763	0.067	E2	Other lintels (including other steel lintels)
30.6	0.045	E4	Jamb
23.08	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)
9.763	0.03	E3	Sill
18.2	0.24	P4	Roof (insulation at ceiling level)
18.2	0	P3	Intermediate floor between dwellings (in blocks of flats)

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: E03 05 - Level 3

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 217.26
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:	177.07	**(P1)**
Transmission heat loss coefficient:	47.9	
Summer heat loss coefficient:	224.97	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08b)	0	1
North (W03d)	0	1
East (W08b)	0	1
North (W01b)	0	1
East (W04e)	0	1
East (W02c)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
North (W08b)	0.85	0.9	1	0.76	**(P8)**
North (W03d)	0.85	0.9	1	0.76	**(P8)**
East (W08b)	0.85	0.9	1	0.76	**(P8)**
North (W01b)	0.85	0.9	1	0.76	**(P8)**
East (W04e)	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	
North (W08b)	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 (W08b)	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 (W04e)	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	508.62	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	995.9	941.92	873.48	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	4.43	4.19	3.88	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.48	0.48	0.48	
Threshold temperature	20.91	22.57	22.16	**(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 10:31:20

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:** E03 06 - 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)	23.98 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.37 kg/m²	**Fail**

Excess emissions = 4.39 kg/m² (18.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.3 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	0.10 (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	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	4.33m²
Windows facing: East	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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E03 06 - 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 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	
W02c	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	4.33	1
W02c	16mm or more	0.8	0.38	1.3	3.54	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	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	58.575	23.12	35.46	0.18	0	False	0

SAP Input

Floor	81.3	0.1	0
Internal Elements			
Int	179.85		9
Party Elements			
P.Wall	50.05		0
P. Ceiling	81.3		0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0804

Length	Psi-value		
9.508	0.067	E2	Other lintels (including other steel lintels)
28.95	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)
9.508	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: E03 06 - Level 3

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):	2.6 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	191.83	**(P1)**
Transmission heat loss coefficient:	54.3	
Summer heat loss coefficient:	246.15	**(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 (W04e)	0	1
East (W02c)	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 (W04e)	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	
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 (W04e)	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	466.35	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	451.28	433.3	441.45	
Total summer gains	941.6	899.65	871.95	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.83	3.65	3.54	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.86	1.86	1.86	
Threshold temperature	21.69	23.42	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 10:31:20

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:** E03 07 - 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)	28.9 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	33.18 kg/m²	**Fail**

Excess emissions = 4.28 kg/m² (14.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.2 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.0 kWh/m²	**Fail**

Excess energy = 0.79 kg/m² (02.1 %)

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	0.10 (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	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:	2.20
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E03 07 - 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 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
Floor	38.3			0.1			0
Internal Elements							
Int	56.788						9
Party Elements							
P.Wall	55.825						0
P. Ceiling	38.3						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.128

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

SAP Input

8.55	0.045	E4	Jamb
7.05	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: E03 07 - 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:	as detailed below
Thermal mass parameter:	Calculated 13.34
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	76.47	**(P1)**
Transmission heat loss coefficient:	21.5	
Summer heat loss coefficient:	97.93	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05d)	0.67	0.52
South (W01a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05d)	0.85	0.9	0.52	0.36	**(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	0.36	57.64	
South (W01a)	0.9 x	1.57	112.21	0.38	0.8	0.76	36.87	
						Total	94.51	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	275.78	265.41	270.86	
Total summer gains	373.74	359.92	364.1	**(P5)**
Summer gain/loss ratio	3.82	3.68	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	21.72	23.48	23.42	**(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 10:31:20

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:** E03 08 - 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)	27.3 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.93 kg/m²	**Fail**

Excess emissions = 4.63 kg/m² (17 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.0 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	38.3 kWh/m²	**Fail**

Excess energy = 0.32 kg/m² (00.8 %)

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	0.10 (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	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:	2.60
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
Floors U-value	0.1 W/m²K

SAP Input

Property Details: E03 08 - 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 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
Floor	43.6			0.1			0
Internal Elements							
Int	63.25						9
Party Elements							
P.Wall	52.8						0
P. Ceiling	43.6						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1197

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: E03 08 - 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 13.06
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:	102.87	**(P1)**
Transmission heat loss coefficient:	25.6	
Summer heat loss coefficient:	128.43	**(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	3.8	3.66	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	21.71	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 10:31:19

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: E03 09 - 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)	20.02 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.44 kg/m²	**Fail**

Excess emissions = 3.42 kg/m² (17.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	25.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.8 kWh/m²	**Fail**

Excess energy = 2.95 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	3.54m²
Windows facing: South	7.08m²
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: E03 09 - 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 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	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	30.525	10.62	19.9	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 = 0.246

Length	Psi-value		
4.17	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
4.17	0.03	E2	Other lintels (including other steel lintels)
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: E03 09 - 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 16.31
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:	24.2	
Summer heat loss coefficient:	171.67	**(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	401.96	386.18	393.69	
Total summer gains	660.5	635.59	639.77	**(P5)**
Summer gain/loss ratio	3.85	3.7	3.73	**(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	23.49	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 10:31:19

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:** E03 10 - 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)	20.44 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.73 kg/m²	**Fail**

Excess emissions = 3.29 kg/m² (16.1 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	28.9 kWh/m²	**Fail**

Excess energy = 2.36 kg/m² (08.9 %)

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	3.54m²
Windows facing: South	4.7m²
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: E03 10 - 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 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:
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	29.975	8.24	21.74	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 = 0.3153

Length	Psi-value		
4.11	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
4.11	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: E03 10 - 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 15.39
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:	135.16	**(P1)**
Transmission heat loss coefficient:	23.5	
Summer heat loss coefficient:	158.71	**(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	402.74	387.01	394.77	
Total summer gains	603.33	580.53	585.7	**(P5)**
Summer gain/loss ratio	3.8	3.66	3.69	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.69	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 10:31:19

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:** E03 11 - 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)	24.59 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.92 kg/m²	**Fail**

Excess emissions = 3.33 kg/m² (13.5 %)

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	6.7m²
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: E03 11 - 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 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:
W06c	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:
W06c	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:
W06c		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	21.175	9.05	12.12	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 = 0.3693

Length	Psi-value		
3.988	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
3.988	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: E03 11 - Level 3

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:	148.54	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02a)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	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 (W06c)	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	326.71	314.14	320.38	
Total summer gains	562.99	536.73	516.2	**(P5)**
Summer gain/loss ratio	3.79	3.61	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	23.43	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 10:31:19

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:** E03 12 - 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)	24.25 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.50 kg/m²	**Fail**

Excess emissions = 3.25 kg/m² (13.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.8 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	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: E03 12 - 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 11.65
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:
W06c	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:
W06c	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:
W06c		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 = 0.3776

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

SAP Input

8.55	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
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: E03 12 - Level 3

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:	151.15	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
East (W06c)	0	1
East (W02a)	0	1

DRAFT

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
East (W06c)	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 (W06c)	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

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 10:31:19

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:** E03 13 - 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)	24.46 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.96 kg/m²	**Fail**

Excess emissions = 3.5 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:	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: E03 13 - 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 11.48
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:
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	20.35	10.24	10.11	0.18	0	False	0
Internal Elements							
Int	65.175						9
Party Elements							
P.Wall	61.6						0
P. Ceiling	49.7						0
Floor	49.7						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.383

Length	**Psi-value**		
4.018	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
4.018	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: E03 13 - Level 3

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:	22.3	
Summer heat loss coefficient:	156.75	**(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	3.82	3.64	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	21.74	23.46	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 10:31:19

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: E03 14 - 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)	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: E03 14 - 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 14.34
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	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: E03 14 - Level 3

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

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

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 10:31:19

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:** E03 15 - 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)	27.68 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	30.55 kg/m²	**Fail**

Excess emissions = 2.87 kg/m² (10.4 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.4 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	3.54m²
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: E03 15 - 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 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
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 = 0.3848

Length	Psi-value		
3.118	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)
3.118	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: E03 15 - Level 3

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:	20.2	
Summer heat loss coefficient:	114.07	**(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	3.88	3.68	3.51	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.91	1.91	1.91	
Threshold temperature	21.78	23.49	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 10:31:19

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:** E03 16 - 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)	28.26 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	31.25 kg/m²	**Fail**

Excess emissions = 2.99 kg/m² (10.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.7 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: North	4.63m²
Windows facing: North	3.54m²
Windows facing: East	3.73m²
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: E03 16 - 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 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	3.73	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	1.463	2.55

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	24.2	11.9	12.3	0.18	0	False	0
Internal Elements							
Int	64.35						9
Party Elements							
P.Wall	52.525						0
P. Ceiling	43.4						0
Floor	43.4						40

Thermal bridges:

SAP Input

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3311

Length	Psi-value		
4.668	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)
4.668	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

DRAFT

SAP 2012 Overheating Assessment

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

Property Details: E03 16 - Level 3

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):	2.7 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	106.34	**(P1)**
Transmission heat loss coefficient:	24.9	
Summer heat loss coefficient:	131.27	**(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)**

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	3.73	117.51	0.38	0.8	0.76	91.74	
						Total	230.57	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	297.27	285.97	291.73	
Total summer gains	544.85	516.54	485.32	**(P5)**
Summer gain/loss ratio	4.15	3.93	3.7	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.63	1.63	1.63	
Threshold temperature	21.78	23.46	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 10:31:18

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 71.9m²
Site Reference : Station Hill - Block E **Plot Reference:** E03 17 - 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)	23.41 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.23 kg/m²	**Fail**

Excess emissions = 1.82 kg/m² (7.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	33.5 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	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: E03 17 - 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 16.32
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	71.9 m²	2.75 m

Living area:	30.2 m² (fraction 0.42)
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	31.625	13.78	17.85	0.18	0	False	0
Internal Elements							
Int	130.35						9
Party Elements							
P.Wall	68.75						0
P. Ceiling	71.9						0
Floor	71.9						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.306

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: E03 17 - Level 3

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 16.32
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:	143.55	**(P1)**
Transmission heat loss coefficient:	29.9	
Summer heat loss coefficient:	173.47	**(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	417.97	401.45	409.11	
Total summer gains	671.3	635.6	599.49	**(P5)**
Summer gain/loss ratio	3.87	3.66	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	21.76	23.45	23.14	**(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 10:31:18

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 80.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E03 18 - 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)	23.65 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.89 kg/m²	**Fail**

Excess emissions = 2.24 kg/m² (9.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	43.6 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: 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: E03 18 - 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 18.35
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	80.8 m²	2.75 m

Living area:	36 m² (fraction 0.446)
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	56.65	18.29	38.36	0.18	0	False	0
Internal Elements							
Int	164.725						9
Party Elements							
P.Wall	50.05						0
P. Ceiling	80.8						0
Floor	80.8						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1746

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
18.4	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.4	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: 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

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

DRAFT

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: E03 18 - Level 3

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 18.35
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:	175.98	**(P1)**
Transmission heat loss coefficient:	39.4	
Summer heat loss coefficient:	215.38	**(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	449.62	431.72	439.84	
Total summer gains	844.95	800.66	752.37	**(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	23.16	**(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 10:31:18

Project Information:

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

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 80.8m²
Site Reference : Station Hill - Block E **Plot Reference:** E03 19 - 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)	21.12 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	24.90 kg/m²	**Fail**

Excess emissions = 3.78 kg/m² (17.9 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	35.8 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:	0.63	
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	7.1m²
Windows facing: South	4.33m²
Windows facing: East	7.14m²
Windows facing: East	4.04m²
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: E03 19 - 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 18.59
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	80.8 m²	2.75 m

Living area:	36 m² (fraction 0.446)
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	7.1	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	4.04	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08f		Ext	South	2.785	2.55
W04e		Ext	South	1.698	2.55
W08f		Ext	East	2.8	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	56.65	22.61	34.04	0.18	0	False	0
Internal Elements							
Int	166.925						9
Party Elements							
P.Wall	50.05						0
P. Ceiling	80.8						0
Floor	80.8						0

SAP Input

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.1196

Length	Psi-value		
8.868	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)
8.868	0.021	E3	Sill
18.7	0	P3	Intermediate floor between dwellings (in blocks of flats)
18.7	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: 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: E03 19 - Level 3

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 18.59
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:	234.64	**(P1)**
Transmission heat loss coefficient:	40.8	
Summer heat loss coefficient:	275.49	**(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	7.1	112.21	0.38	0.8	0.76	166.74	
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	4.04	117.51	0.38	0.8	0.76	99.36	
						Total	543.4	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	449.62	431.72	439.84	
Total summer gains	1019.76	975.12	946.6	**(P5)**
Summer gain/loss ratio	3.7	3.54	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	21.57	23.31	23.11	**(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 10:31:18

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 49.8m²

Site Reference : Station Hill - Block E

Plot Reference: E03 20 - 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)	22.92 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	26.65 kg/m²	**Fail**

Excess emissions = 3.73 kg/m² (16.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.8 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	30.2 kWh/m²	**Fail**

Excess energy = 3.42 kg/m² (12.8 %)

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:	0.63	
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	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: E03 20 - 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 12.23
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	49.8 m²	2.75 m

Living area:	28.8 m² (fraction 0.578)
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	1

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	20.35	7.08	13.27	0.18	0	False	0
Internal Elements							
Int	67.65						9
Party Elements							
P.Wall	61.05						0
P. Ceiling	49.8						0
Floor	49.8						0

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.3681

Length	Psi-value		
2.78	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
2.78	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: E03 20 - 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 12.23
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:	112.98	**(P1)**
Transmission heat loss coefficient:	18.6	
Summer heat loss coefficient:	131.61	**(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	3.54	112.21	0.38	0.8	0.76	83.14	
South (W02c)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	166.27	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	325.71	313.23	319.58	
Total summer gains	498.07	479.51	483.64	**(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	21.7	23.46	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 10:31:18

Project Information:

Assessed By: ()

Building Type: Flat

Dwelling Details:

NEW DWELLING DESIGN STAGE

Total Floor Area: 40.4m²

Site Reference : Station Hill - Block E

Plot Reference: E03 21 - 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)	26.34 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.99 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.5 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	31.8 kWh/m²	
		Fail

Excess energy = 1.28 kg/m² (04.2 %)

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	3.54m²
Windows facing: South	2.4m²
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: E03 21 - 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 224.53
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	40.4 m²	2.75 m

Living area:	31.8 m² (fraction 0.787)
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	South	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	23.1	5.94	17.16	0.18	0	False	14
Internal Elements							
Int	56.485						9
Party Elements							
P.Wall	52.525						20
P. Ceiling	40.4						100
Floor	40.4						80

Thermal bridges:

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

Length	Psi-value		
2.33	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
2.33	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
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: E03 21 - 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 224.53
Night ventilation:	False
Blinds, curtains, shutters:	Dark-coloured curtain or roller blind
Ventilation rate during hot weather (ach):	2.3 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	84.32	**(P1)**
Transmission heat loss coefficient:	18.1	
Summer heat loss coefficient:	102.44	**(P2)**

Overhangs:

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

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05e)	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**	
South (W05e)	0.9 x	3.54	112.21	0.38	0.8	0.76	83.14	
South (W01b)	0.9 x	2.4	112.21	0.38	0.8	0.76	56.36	
						Total	139.5	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	284.8	274.08	279.74	
Total summer gains	429.41	413.58	417.38	**(P5)**
Summer gain/loss ratio	4.19	4.04	4.07	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.43	0.43	0.43	
Threshold temperature	20.62	22.37	22.3	**(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 10:31:18

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:** E03 22 - 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)	19.91 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.44 kg/m²	**Fail**

Excess emissions = 1.53 kg/m² (7.7 %)

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 = 1.73 kg/m² (06.6 %)

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:	0.61	
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:	2.20
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: E03 22 - 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 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

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	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 = 0.3131

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
25.6	0	P3	Intermediate floor between dwellings (in blocks of flats)
25.6	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
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: E03 22 - 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 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:	164.49	**(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	21.69	23.43	23.35	**(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 10:31:18

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:** E03 23 - 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)	20.22 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.89 kg/m²	**Fail**

Excess emissions = 3.67 kg/m² (18.2 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.7 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.8 kWh/m²	**Fail**

Excess energy = 3.14 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	3.54m²
Windows facing: South	7.08m²
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: E03 23 - 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 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
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 = 0.3537

Length	Psi-value		
1.78	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	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	0.03	E3	Sill
1.78	0.013	E2	Other lintels (including other steel lintels)
1.78	0.021	E3	Sill
10.2	0.016	E4	Jamb
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: E03 23 - 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 17.08
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:	148.32	**(P1)**
Transmission heat loss coefficient:	26.1	
Summer heat loss coefficient:	174.4	**(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	3.8	3.65	3.68	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.88	1.88	1.88	
Threshold temperature	21.68	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 10:31:18

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: E03 24 - 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)	21.57 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.79 kg/m²	**Fail**

Excess emissions = 4.22 kg/m² (19.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.7 kWh/m²	**Fail**

Excess energy = 2.11 kg/m² (06.9 %)

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	3.54m²
Windows facing: South	7.08m²
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: E03 24 - 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 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
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 = 0.2282

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
28.66	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: E03 24 - 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 16.42
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:	143.75	**(P1)**
Transmission heat loss coefficient:	29.7	
Summer heat loss coefficient:	173.48	**(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	3.77	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	21.65	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 10:31:17

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:** E03 25 - 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)	24.04 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.48 kg/m²	**Fail**

Excess emissions = 3.44 kg/m² (14.3 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.1 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	6.7m²
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: E03 25 - 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 11.22
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 = 0.3845

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
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

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: E03 25 - Level 3

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:	22.6	
Summer heat loss coefficient:	160.25	**(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	3.77	3.59	3.44	**(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	23.41	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 10:31:17

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:** E03 26 - 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)	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: E03 26 - 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 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
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

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
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: E03 26 - Level 3

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 10:31:17

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:** E03 27 - 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)	25.91 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.30 kg/m²	**Fail**

Excess emissions = 3.39 kg/m² (13.1 %)

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:	0.63	
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	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: E03 27 - 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 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 + 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: E03 27 - Level 3

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 10:31:17

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:** E03 28 - 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)	20.02 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.72 kg/m²	**Fail**

Excess emissions = 3.7 kg/m² (18.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	26.1 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.5 kWh/m²	**Fail**

Excess energy = 3.38 kg/m² (12.9 %)

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	3.54m²
Windows facing: South	7.08m²
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: E03 28 - 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 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	
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	27.5	10.62	16.88	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 = 0.3413			
	Length	**Psi-value**		
	4.17	0.067	E2	Other lintels (including other steel lintels)

SAP Input

15.3	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
4.17	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: E03 28 - 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 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:	25.5	
Summer heat loss coefficient:	174.74	**(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	405.17	389.25	396.82	
Total summer gains	663.71	638.66	642.9	**(P5)**
Summer gain/loss ratio	3.8	3.65	3.68	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.69	23.44	23.37	**(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 10:31:17

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: E03 29 - 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)	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: E03 29 - 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 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: E03 29 - 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 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 10:31:17

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:** E03 30 - 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)	24.65 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	29.24 kg/m²	**Fail**

Excess emissions = 4.59 kg/m² (18.6 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	32.7 kWh/m²	**Fail**

Excess energy = 5.31 kg/m² (19.4 %)

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	4.41m²
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: E03 30 - 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 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	
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	17.325	7.95	9.38	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 = 0.4276

Length	Psi-value		
3.118	0.067	E2	Other lintels (including other steel lintels)

SAP Input

10.2	0.045	E4	Jamb
6.38	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
3.118	0.03	E3	Sill
21.22	0	P3	Intermediate floor between dwellings (in blocks of flats)
21.22	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: E03 30 - 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 13.14
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:	110.53	**(P1)**
Transmission heat loss coefficient:	18.9	
Summer heat loss coefficient:	129.45	**(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	291.28	280.24	285.91	
Total summer gains	484.82	466.94	470.12	**(P5)**
Summer gain/loss ratio	3.75	3.61	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	23.42	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 10:31:17

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:** E03 31 - 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)	20.36 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.78 kg/m²	**Fail**

Excess emissions = 3.42 kg/m² (16.8 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	27.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	29.6 kWh/m²	**Fail**

Excess energy = 2.26 kg/m² (08.3 %)

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	4.12m²
Windows facing: South	5.62m²
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: E03 31 - 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 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	
W02b	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
W02b	16mm or more	0.8	0.38	1.3	2.81	2

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W05a		Ext	South	2.035	2.025
W02b		Ext	South	1.39	2.025

Overshading:	Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext	34.375	9.74	24.64	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 = 0.2694

Length	Psi-value		
4.815	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.815	0.021	E3	Sill
12.15	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: E03 31 - 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 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:	25.7	
Summer heat loss coefficient:	170.8	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South (W05a)	0	1
South (W02b)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (W05a)	0.85	0.9	1	0.76	**(P8)**
South (W02b)	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 (W02b)	0.9 x	5.62	112.21	0.38	0.8	0.76	131.99	
						Total	228.75	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	409.39	393.32	401.04	
Total summer gains	646.5	622.06	626.73	**(P5)**
Summer gain/loss ratio	3.79	3.64	3.67	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.89	1.89	1.89	
Threshold temperature	21.67	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 10:31:17

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:** E03 32 - 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)	21.35 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.20 kg/m²	**Fail**

Excess emissions = 3.85 kg/m² (18 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.1 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	(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	2.81m²
Windows facing: East	3.53m²
Windows facing: East	4.41m²
Windows facing: East	4.12m²
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: E03 32 - 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 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	
W02b	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	
W03d	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
W02b	16mm or more	0.8	0.38	1.3	2.81	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
W03d	16mm or more	0.8	0.38	1.3	4.12	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W08d		Ext	South	2.785	2.55
W02b		Ext	South	1.39	2.025
W08d		Ext	East	1.385	2.55
W04d		Ext	East	1.728	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	56.375	21.97	34.41	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 = 0.1692

Length	Psi-value		
8.903	0.013	E2	Other lintels (including other steel lintels)
8.903	0.021	E3	Sill
24.45	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: E03 32 - Level 3

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):	2.9 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	217.65	**(P1)**
Transmission heat loss coefficient:	42.9	
Summer heat loss coefficient:	260.52	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
South (W08d)	0	1
South (W02b)	0	1
East (W08d)	0	1
East (W04d)	0	1
East (W03d)	0	1

DRAFT

Solar shading:

Orientation:	Z blinds:	Solar access:	Overhangs:	Z summer:	
South (W08d)	0.85	0.9	1	0.76	**(P8)**
South (W02b)	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 (W03d)	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 (W02b)	0.9 x	2.81	112.21	0.38	0.8	0.76	65.99	
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 (W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
						Total	529.35	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	455.84	437.66	445.88	
Total summer gains	1011.95	967.01	936.45	**(P5)**
Summer gain/loss ratio	3.88	3.71	3.59	**(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	23.48	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 10:31:16

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:** E03 33 - 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)	23.08 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	27.00 kg/m²	**Fail**

Excess emissions = 3.92 kg/m² (17 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	42.9 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	39.9 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: North	7.14m²
Windows facing: North	2.4m²
Windows facing: East	7.14m²
Windows facing: East	4.41m²
Windows facing: East	4.12m²
Windows facing: North	4.12m²
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: E03 33 - 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 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	
W03d	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	2.4	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
W03d	16mm or more	0.8	0.38	1.3	4.12	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	0.94	2.55
W08f		Ext	East	2.8	2.55
W04d		Ext	East	1.728	2.55
W03d		Ext	East	1.615	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	50.133	29.33	20.8	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 = 0.1666

Length	Psi-value		
11.498	0.013	E2	Other lintels (including other steel lintels)
11.498	0.021	E3	Sill
30.6	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: E03 33 - Level 3

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):	3.2 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	242.48	**(P1)**
Transmission heat loss coefficient:	48.3	
Summer heat loss coefficient:	290.82	**(P2)**

Overhangs:

Orientation:	Ratio:	Z_overhangs:
North (W08f)	0	1
North (W01b)	0	1
East (W08f)	0	1
East (W04d)	0	1
East (W03d)	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 (W03d)	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	2.4	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 (W03d)	0.9 x	4.12	117.51	0.38	0.8	0.76	101.33	
North (W03d)	0.9 x	4.12	81.19	0.38	0.8	0.76	70.01	
						Total	617.51	**(P3/P4)**

Internal gains:

	June	July	August	
Internal gains	458.4	440.11	448.36	
Total summer gains	1118.63	1057.62	976.15	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	3.85	3.64	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	21.72	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 10:31:16

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: E03 34 - 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)	25.45 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.44 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.3 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	36.2 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**
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:	0.63	
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:	2.10
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: E03 34 - 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 218.29
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	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	14
Internal Elements							
Int	67.1						9
Party Elements							
P.Wall	65.175						20
P. Ceiling	54.6						100
Floor	54.6						80

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

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
4.243	0.021	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:	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: E03 34 - Level 3

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 218.29
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:	104.05	**(P1)**
Transmission heat loss coefficient:	23.7	
Summer heat loss coefficient:	127.78	**(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	4.27	4.04	3.83	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	0.47	0.47	0.47	
Threshold temperature	20.74	22.42	22.1	**(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 10:31:16

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:** E03 35 - 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)	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:	3.40
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: E03 35 - 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 11.8
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	0.12	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:

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: E03 35 - Level 3

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):	3.4 (Trickle vents only)

Overheating Details:

Summer ventilation heat loss coefficient:	160.45	**(P1)**
Transmission heat loss coefficient:	31.8	
Summer heat loss coefficient:	192.24	**(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	3.79	3.58	3.32	**(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	23.4	23.04	**(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 10:31:16

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:** E03 36 - 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)	23.41 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	25.00 kg/m²	**Fail**

Excess emissions = 1.59 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	4.04m²
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: E03 36 - 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 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	4.04	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	1.585	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	14.28	14.32	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 = 0.2959

Length	Psi-value		
5.603	0.013	E2	Other lintels (including other steel lintels)
5.603	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: E03 36 - Level 3

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:	28.7	
Summer heat loss coefficient:	176.88	**(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	4.04	81.19	0.38	0.8	0.76	68.65	
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	242.65	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	414.53	398.16	405.76	
Total summer gains	677.05	640.81	603.06	**(P5)**
Summer gain/loss ratio	3.83	3.62	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	23.41	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 10:31:16

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:** E03 37 - 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)	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: E03 37 - 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 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	0.18	E16	Corner (normal)
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 + 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: E03 37 - Level 3

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 10:31:16

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:** E03 38 - 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)	25.59 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	28.01 kg/m²	**Fail**

Excess emissions = 2.42 kg/m² (9.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.0 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: 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: E03 38 - 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 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 = 0.3227

Length	**Psi-value**		
4.693	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.693	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: E03 38 - Level 3

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:	24.4	
Summer heat loss coefficient:	148.26	**(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	5.27	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	3.82	3.62	3.41	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.9	1.9	1.9	
Threshold temperature	21.73	23.42	23.11	**(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 10:31:16

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:** E03 39 - 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)	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

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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	8.08m²
Windows facing: North	3.54m²
Ventilation rate:	2.00
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: E03 39 - 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 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	4.04	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

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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: E03 39 - Level 3

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

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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

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 10:31:16

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: E03 40 - 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)	21.36 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	23.93 kg/m²	**Fail**

Excess emissions = 2.57 kg/m² (12 %)

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 %)

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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	8.08m²
Windows facing: South	3.54m²
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: E03 40 - 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 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

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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	4.04	2
W05e	16mm or more	0.8	0.38	1.3	3.54	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W03d		Ext	South	1.585	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	11.62	38.43	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**		
4.56	0.013	E2	Other lintels (including other steel lintels)

SAP Input

4.56	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: E03 40 - 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 55.34
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:	137.79	**(P1)**
Transmission heat loss coefficient:	32.3	
Summer heat loss coefficient:	170.06	**(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	3.54	112.21	0.38	0.8	0.76	83.14	
						Total	272.9	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	419.76	403.19	410.96	
Total summer gains	702.64	676.09	680.21	**(P5)**
Summer gain/loss ratio	4.13	3.98	4	**(P6)**
Mean summer external temperature (Thames valley)	16	17.9	17.8	
Thermal mass temperature increment	1.61	1.61	1.61	
Threshold temperature	21.74	23.49	23.41	**(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 10:31:16

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:** E03 41 - 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)	19.61 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	21.47 kg/m²	**Fail**

Excess emissions = 1.86 kg/m² (9.5 %)

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.4 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	27.9 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: West	3.47m²
Windows facing: West	3.54m²
Windows facing: South	2.4m²
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