Proposed Sustainability Measures for Dwellings

The following subsections detail the sustainability measures that will be incorporated into the design of the proposed dwellings.

Energy

Dwelling Emission Rate and Fabric Energy Efficiency

The methodology set out by the Department of Energy and Climate Change (DECC) for assessing the energy use of dwellings is the Standard Assessment Procedure (SAP). The current version is SAP 2012.

Preliminary SAP calculations were carried out to assess the potential CO_2 savings achieved through

- Energy efficiency measures
- The efficient supply of energy and
- Renewable systems

The preliminary calculations showed a significant improvement over Part L Building Regulations 2013, amounting to a 41.0% reduction in regulated CO_2 emissions in Blocks A, B and C, and a 43.5% reduction for the new build dwellings in Block D.

The energy demand of the dwellings will be reduced significantly through the adoption of high levels of insulation and good levels of air tightness to improve the buildings fabric efficiency. SAP calculations were based on a building fabric with low U-values and an air permeability rate of $5m^3/m^2$ at 50 Pa.

Drying Space

The proposed dwellings will include provisions for internal clothes drying where appropriate, thereby reducing the amount of electricity consumed through the use of tumble dryers.

Energy Labelled White Goods

The dwellings will be supplied with an EU Energy Efficiency Labelling Scheme Leaflet to help the tenants choose energy efficient white goods.

External Lighting

Energy efficient light fittings will be installed throughout the development where appropriate. In addition, external lights will be fitted with controls to reduce the energy consumption of the building during periods of infrequent use:

- External space lighting will include energy efficient fittings
- Security lighting will include daylight cut-off devices, with a maximum wattage of 150W and PIR

Low or Zero Carbon Technologies

A feasibility study was carried out to determine the energy strategy for the proposed development. A communal CHP plant was considered to be the most feasible low carbon solution for the residential component of the development. In addition, PV was considered the most suitable zero carbon technology. The low and zero carbon reductions from this combination will be over 15%.

Cycle Storage

Cycle storage spaces will be provided within the development for use by users of the residential units to reduce the frequency of short car journeys. Storage spaces will be provided at a rate of 1 cycle for every two 1-bedroom dwelling, and 1 for every 2 and 3 bedroom dwelling. The cycle storage will be adequately sized, secure and accessible to all occupants.

Water

Indoor Water Use

The development at 49-50 Eagle Wharf Road aims to reduce water consumption to below 110 litres per person per day, in line with the lower criteria within Part G of the Building Regulations proposed for October 2015, through the use of water efficient fittings, and these are listed below.

Recommended specification for sanitary fittings

Fitting	Consumption per Use
WC (full flush)	6 litres per flush
WC (half flush)	4 litres per flush
Kitchen sink tap	8 litres per min
Wash basin tap	6 litres per min
Bath	185 litres to overflow
Shower	10 litres/min
Washing machine	8.17 litres/kilogram
Dishwasher	1.25 litres/place setting

Materials

Embodied energy is the energy that is used in the manufacture, processing and the transportation of the materials to site.

The construction build-ups for each of the main building elements are rated from A+ to E. Each element to be used in the building has been rated according to the BRE Green Guide to Specification whereby:

- A+ rated elements are least likely to affect the environment
- E rated elements are most likely to affect the environment

It is assumed that most of the main building elements within this development will achieve between an A+ to C rating where possible.

Aggregates from the demolition of any existing hard surfacing/landscaping on site will be crushed and used as substrate material for the building base and road surfaces where possible. All timber used during site preparation and construction to be FSC certified, and all non-timber materials to be certified with Environmental Management Systems (ISO 14001 OR BES 6001) where possible.

Surface Water Run-off

Landscaped areas have been maximised to reduce the amount of surface water run off from the site.

The Environment Agency flood map shows the proposed development to be located within an area at low risk of flooding. A flood risk assessment has been undertaken to confirm this.

Waste

Household Waste

Dedicated external waste storage for the dwellings will be provided to meet the Code and Local Authority requirements.

Adequate internal storage for recyclable waste will be provided to all dwellings in a dedicated position. The Local Authority provides recyclable household waste collection and sorting.

Total internal refuse and recycling waste storage to be 60 litres, in line with Hackney's requirements.

Construction Site Waste Management

The development will minimise the impact of construction waste on the environment through a Site Waste Management Plan (SWMP). This plan will include:

- Benchmarks for resource efficiency
- Procedures and commitments to reduce hazardous and non-hazardous waste
- Monitoring hazardous and non-hazardous waste

WAS 3 Composting

Kitchen waste will be collected by the local authority. 240 litres food waste bins are to be provided for each block. In addition, internal 7 litre bins will be provided to each dwelling for storage of food waste.

Pollution

Global Warming Potential (GWP) of Insulants

Global warming potential (GWP) is a measure of how effective a gas is at preventing the passage of infrared radiation. Blowing agents, used in the production of insulation, are a common source of gases with high GWPs.

The development will specify insulation materials that have a low Global Warming Potential (GWP).

NOx Emissions

Space heating and hot water requirements are to be met through an efficient CHP system with inherently low NOx emissions.

Health and Wellbeing

Daylighting

The dwellings have been designed with daylight in mind and measures have been taken to maximise daylight where possible.

Sound Insulation

The development proposes that airborne sound insulation will comply or exceed current Building Regulations Part E standards.

Private Space

Private external spaces will be provided for all flats in this development with the aim of improving the quality of life of the occupants.

Lifetime Homes

All dwellings will be Lifetime Homes compliant, ensuring that they are easily adaptable for future use.

Management

Considerate Constructors Scheme

The tender specification will require contractors to be compliant with the Considerate Constructors Scheme (CCS). The development will achieve a total score of 40 or more under the current scheme, and at least a score of 7 under every section.

Construction Site Impacts

To minimise the construction impacts of the site, contractors will be required to monitor, report and set targets for:

- The production of CO_2 arising from site activities
- Water consumption from site activities

In addition, contractors will be required to adopt best practice policies for air (dust) and water (ground and surface) pollution occurring on site. All timber will be sourced following the Government's Timber Procurement Policy.

Ecology

Ecological Value of Site & Protection of ecological features

The site is located on previously developed land and is of low ecological value, this has been confirmed by a Suitably Qualified Ecologist (SQE) through a site survey.

Ecological Enhancement

Recommendations provided by the ecologist will be adopted. The proposed scheme will include planting of evergreen shrubs that provide dense cover all year round, as well as flowering shrubs and trees that would benefit birds and invertebrates, which in turn would support other wildlife.

Building Footprint

The proposed development will increase the density of the site. This will ensure that the land is used efficiently whilst maximising the building area.

Appendix A - Sample overheating calculations

The table below lists all of the dwellings that were modelled using SAP methodology. The overheating calculation sheets for all dwellings are presented in the subsequent pages,

SAP Ref No.	Block	Unit Ref.
1	C	C03
2	C	C01
3	B	B02
4	B	B11
5	A	A03
6	A	A02
7	C	C06
8	C	C04
9	B	B06
10	B	17
11	A	A05
12	A	A04
13	C	C12
14	C	C10
15	B	B19
16	B	B17
17	A	A13
18	A	A12
19	E	E01
20	E	E02
21	E	E05
22	E	E06
23	E	E11

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 1

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	178.2	**(P1)**
Transmission heat loss coefficient:	68.1	
Summer heat loss coefficient:	246.28	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W1)	0	1
South West (W2)	0	
North West (W3)	0	
North West (W4)	0	
North West (W5)	0	
North West (W6)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W1)	1	0.9	1	0.9	**(P8)**
South West (W2)					**(P8)**
North West (W3)					**(P8)**
North West (W4)					**(P8)**
North West (W5)					**(P8)**
North West (W6)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 2

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	175.97	**(P1)**
Transmission heat loss coefficient:	50.3	
Summer heat loss coefficient:	226.23	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W7)	0	1
South West (W8)	0	
South West (W9)	0	
South West (W10)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W7)	1	0.9	1	0.9	**(P8)**
South West (W8)					**(P8)**
South West (W9)					**(P8)**
South West (W10)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 3

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	115.83	**(P1)**
Transmission heat loss coefficient:	39.6	
Summer heat loss coefficient:	155.46	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W11)	0	1
South East (W12)	0.83	
South East (W13)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W11)	1	0.9	1	0.9	**(P8)**
South East (W12)					**(P8)**
South East (W13)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 4

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	198.25	**(P1)**
Transmission heat loss coefficient:	52.8	
Summer heat loss coefficient:	251.09	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W14)	0	1
South East (W15)	0	
North West (W16)	0	
North West (W17)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W14)	1	0.9	1	0.9	**(P8)**
South East (W15)					**(P8)**
North West (W16)					**(P8)**
North West (W17)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 5

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	135.88	**(P1)**
Transmission heat loss coefficient:	49.3	
Summer heat loss coefficient:	185.2	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W18)	0	1
South East (W19)	0	
South East (W20)	0.83	
South West (W21)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W18)	1	0.9	1	0.9	**(P8)**
South East (W19)					**(P8)**
South East (W20)					**(P8)**
South West (W21)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 6

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	111.38	**(P1)**
Transmission heat loss coefficient:	47	
Summer heat loss coefficient:	158.35	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W22)	0	1
South West (W23)	0	
North West (W24)	0	
North West (W25)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W22)	1	0.9	1	0.9	**(P8)**
South West (W23)					**(P8)**
North West (W24)					**(P8)**
North West (W25)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 7

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	178.2	**(P1)**
Transmission heat loss coefficient:	48.9	
Summer heat loss coefficient:	227.08	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W1)	0	1
South West (W2)	0	
North West (W3)	0	
North West (W4)	0	
North West (W5)	0	
North West (W6)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W1)	1	0.9	1	0.9	**(P8)**
South West (W2)					**(P8)**
North West (W3)					**(P8)**
North West (W4)					**(P8)**
North West (W5)					**(P8)**
North West (W6)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 8

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	175.97	**(P1)**
Transmission heat loss coefficient:	30.5	
Summer heat loss coefficient:	206.48	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W7)	0	1
South West (W8)	0	
South West (W9)	0	
South West (W10)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W7)	1	0.9	1	0.9	**(P8)**
South West (W8)					**(P8)**
South West (W9)					**(P8)**
South West (W10)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 9

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	115.83	**(P1)**
Transmission heat loss coefficient:	26.6	
Summer heat loss coefficient:	142.46	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W11)	0	1
South East (W12)	0.83	
South East (W13)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W11)	1	0.9	1	0.9	**(P8)**
South East (W12)					**(P8)**
South East (W13)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 10

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	198.25	**(P1)**
Transmission heat loss coefficient:	30.6	
Summer heat loss coefficient:	228.84	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W14)	0	1
South East (W15)	0	
North West (W16)	0	
North West (W17)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W14)	1	0.9	1	0.9	**(P8)**
South East (W15)					**(P8)**
North West (W16)					**(P8)**
North West (W17)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 11

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	135.88	**(P1)**
Transmission heat loss coefficient:	34.1	
Summer heat loss coefficient:	169.95	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W18)	0	1
South East (W19)	0	
South East (W20)	0.83	
South West (W21)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W18)	1	0.9	1	0.9	**(P8)**
South East (W19)					**(P8)**
South East (W20)					**(P8)**
South West (W21)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 12

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	111.38	**(P1)**
Transmission heat loss coefficient:	34.5	
Summer heat loss coefficient:	145.85	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W22)	0	1
South West (W23)	0	
North West (W24)	0	
North West (W25)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W22)	1	0.9	1	0.9	**(P8)**
South West (W23)					**(P8)**
North West (W24)					**(P8)**
North West (W25)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 13

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	178.2	**(P1)**
Transmission heat loss coefficient:	68.1	
Summer heat loss coefficient:	246.28	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W1)	0	1
South West (W2)	0	
North West (W3)	0	
North West (W4)	0	
North West (W5)	0	
North West (W6)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W1)	1	0.9	1	0.9	**(P8)**
South West (W2)					**(P8)**
North West (W3)					**(P8)**
North West (W4)					**(P8)**
North West (W5)					**(P8)**
North West (W6)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

SAP 2012 Overheating Assessment

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 14

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	175.97	**(P1)**
Transmission heat loss coefficient:	50.3	
Summer heat loss coefficient:	226.23	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W7)	0	1
South West (W8)	0	
South West (W9)	0	
South West (W10)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W7)	1	0.9	1	0.9	**(P8)**
South West (W8)					**(P8)**
South West (W9)					**(P8)**
South West (W10)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 15

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	115.83	**(P1)**
Transmission heat loss coefficient:	39.6	
Summer heat loss coefficient:	155.46	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (W11)	0	1
South East (W12)	0.83	
South East (W13)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (W11)	1	0.9	1	0.9	**(P8)**
South East (W12)					**(P8)**
South East (W13)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 16

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	198.25	**(P1)**
Transmission heat loss coefficient:	52.8	
Summer heat loss coefficient:	251.09	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W14)	0	1
South East (W15)	0	
North West (W16)	0	
North West (W17)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W14)	1	0.9	1	0.9	**(P8)**
South East (W15)					**(P8)**
North West (W16)					**(P8)**
North West (W17)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 17

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North West
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	135.88	**(P1)**
Transmission heat loss coefficient:	49.3	
Summer heat loss coefficient:	185.2	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W18)	0	1
South East (W19)	0	
South East (W20)	0.83	
South West (W21)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W18)	1	0.9	1	0.9	**(P8)**
South East (W19)					**(P8)**
South East (W20)					**(P8)**
South West (W21)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 18

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	North East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	None
Ventilation rate during hot weather (ach):	2.5 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	111.38	**(P1)**
Transmission heat loss coefficient:	47	
Summer heat loss coefficient:	158.35	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (W22)	0	1
South West (W23)	0	
North West (W24)	0	
North West (W25)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (W22)	1	0.9	1	0.9	**(P8)**
South West (W23)					**(P8)**
North West (W24)					**(P8)**
North West (W25)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 19

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	Unspecified
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	
Ventilation rate during hot weather (ach):	2 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	120.86	**(P1)**
Transmission heat loss coefficient:	60.3	
Summer heat loss coefficient:	181.19	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North West (NW windows)	0	1
North East (NE winddows)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North West (NW windows)	1	0.9	1	0.9	**(P8)**
North East (NE winddows)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 20

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	Unspecified
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	
Ventilation rate during hot weather (ach):	2 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	88.96	**(P1)**
Transmission heat loss coefficient:	40.4	
Summer heat loss coefficient:	129.36	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (NE windows)	0	1
South East (Southeast windows)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (NE windows)	1	0.9	1	0.9	**(P8)**
South East (Southeast windows)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 21

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	Unspecified
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	
Ventilation rate during hot weather (ach):	2 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	120.86	**(P1)**
Transmission heat loss coefficient:	43.4	
Summer heat loss coefficient:	164.23	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North West (NW windows)	0	1
North East (NE winddows)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North West (NW windows)	1	0.9	1	0.9	**(P8)**
North East (NE winddows)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 22

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	Unspecified
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	
Ventilation rate during hot weather (ach):	2 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	88.96	**(P1)**
Transmission heat loss coefficient:	27.9	
Summer heat loss coefficient:	116.88	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North East (NE windows)	0	1
South East (Southeast windows)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North East (NE windows)	1	0.9	1	0.9	**(P8)**
South East (Southeast windows)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature:

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 March 2015

Property Details: 23

Dwelling type:	Flat
Located in:	England
Region:	Thames valley
Cross ventilation possible:	No
Number of storeys:	1
Front of dwelling faces:	Unspecified
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	
Ventilation rate during hot weather (ach):	2 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	120.86	**(P1)**
Transmission heat loss coefficient:	50.1	
Summer heat loss coefficient:	170.91	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
North West (NW windows)	0	1
North East (NE winddows)	0	

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
North West (NW windows)	1	0.9	1	0.9	**(P8)**
North East (NE winddows)					**(P8)**

Solar gains:

Orientation	**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
					Total	0	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	0	0	0	
Total summer gains	0	0	0	**(P5)**
Summer gain/loss ratio	0	0	0	**(P6)**
Mean summer external temperature (Thames valley)				
Thermal mass temperature increment	0	0	0	
Threshold temperature	0	0	0	**(P7)**

Likelihood of high internal temperature

Assessment of likelihood of high internal temperature: