



Storage Yard, R/o 137 Turnpike Lane Energy Statement for Planning

Job No: 5536

Issued: March, 2024

Issue No: 1



Contents

1.0	Introduction	3
2.0	Project Summary	4
3.0	Policy Requirements and Drivers	5
4.0	Energy Strategy and Approach	6
5.0	Baseline Emissions	7
6.0	Be Lean Strategy	8
7.0	Be Clean Strategy	9
8.0	Be Green Strategy	10
9.0	Summary of Results	11
10.0	Conclusions	12
	Appendix A – Sbem Assumption and Calculations	14

Document Prepared By:

Document Authorised By:

Jim Westover

Sam Westover

Dated:

Dated:

07.03.24

07.03.24

Signed:

Signed:

This report has been prepared for the exclusive use of the commissioning party and may not be reproduced without prior written permission from T16 Design.

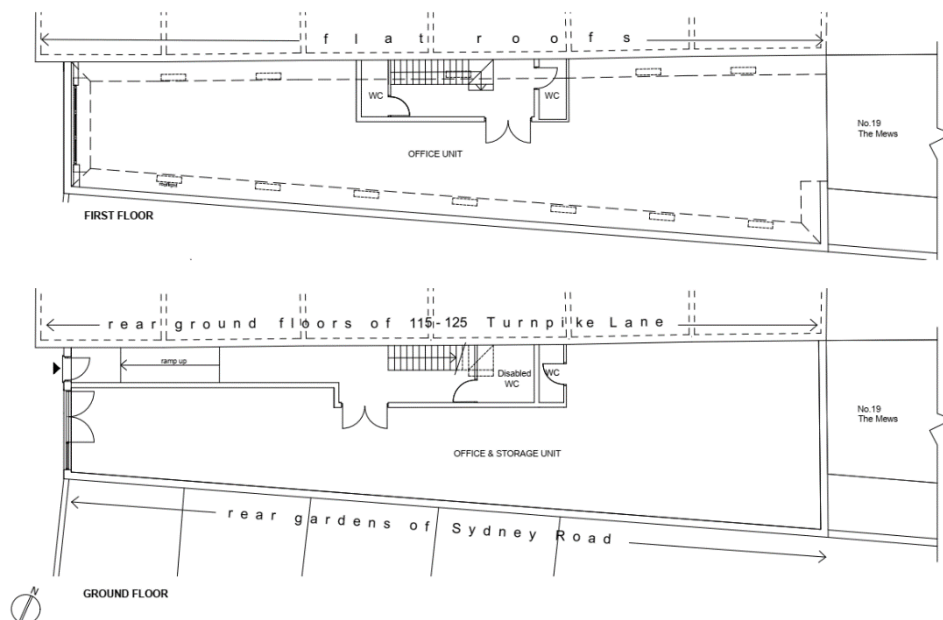
All work has been carried out within the terms of the brief using all reasonable skill, care, and diligence. No liability is accepted by T16 Design for the accuracy of data or opinions provided by others in the preparation of this report, or for any use of this report other than for the purpose for which it was produced.

1.0 Introduction

- 1.1 T16 Design has been appointed to produce this Energy Statement for the proposed storage unit at the rear of 137 Turnpike Lane, N8.
- 1.2 The report assesses the predicted energy performance and carbon dioxide emissions of the proposed development in the context of local and London-wide policy requirements and best practice methods.
- 1.3 The methodology used to demonstrate the effects of the proposed energy efficiency measures is the 3-stage Energy Hierarchy expounded by the London Plan, Policy SI 2 and the Haringey Local Plan Policy SP4.
- 1.4 Emissions reductions are shown for the proposed scheme at each of these stages and the strategy underpinning them is detailed in the relevant sections of the report.
- 1.5 The overarching position within these policies is that all developments should achieve net zero carbon through the following two stages.
 - On site regulated emissions should be reduced by at least 35%
 - All remaining emission will need to be offset.

2.0 Project Summary

- 2.1 The proposal site is located at the rear of 137 Turnpike Lane, London N8.
- 2.2 The proposal involves building on the existing open rear storage yard to construct a new two-storey unit, with an office and storage space on the ground floor and an office unit on the first floor.
- 2.3 The floor plans for the proposed development are shown below.



Proposed Floor Plans

3.0 Policy Requirements and Drivers

3.1 The relevant planning policy documents for this site, relating to energy are:

3.1.1 The London Plan (2021)

- Policy SI 2 – Minimizing greenhouse gas emissions – developments should achieve a minimum of 35% reduction in on site CO₂ emissions.
- Policy SI 4 – Managing Heat risk. .

Haringey Council Local Plan

- Local Plan Policy SP4. 'Working Towards a Low Carbon HA'.
- Local Plan Policy CC2.3 'Minimising Energy Use'.

3.2 SP4 of the Haringey Local Plan, 'Working Towards a Low carbon Haringey' states that developments are expected to achieve a 20% reduction in predicted carbon dioxide emissions thorough the use of on-site renewable generation.

3.3 SP4 also states that non-domestic buildings are expected to achieve a zero carbon standard. All remaining emissions will therefore need to be offset

3.4 It is our understanding that Haringey Council is currently working on a new Local Plan, which is intended to come into force later in 2024.

3.5 light of these policy requirements and through the developer and design team's commitment to reducing the impact of the development on the environment, this report sets out some of the measures that will be adopted to meet the policy targets

4.0 Energy Strategy and Approach

- 4.1 The London Plan document titled "Energy Assessment Guidance", updated in June 2022 updated to take into account of the update to building regulations 2021. This provides the parameters by which Energy Statements should be formulated and the approach to be adopted
- 4.2 The four stages of the hierarchy are referred to as Be Lean (Use Less Energy), Be Clean (Supply Energy Efficiently), Be Green (Use Renewable Energy) and Be Seen (Monitor, verify and report on energy performance).
- 4.3 The Be Lean stage of the hierarchy requires development must initially reduce the energy demand of the building through architectural and building fabric measures (passive design) and energy efficient services (active design).
- 4.4 The second part of the Hierarchy (Be Clean), is interested in the how energy systems will exploit local energy resources and supply energy efficiently and cleanly to reduce CO₂.
- 4.5 The third stage is the addition, where feasible to introduce renewable technology, which may include Heat pumps (Air and Ground), PV panel, Solar Hot Water panels and Wind Power.
- 4.6 The Be Seen stage of the assessment will ensure that the whole life cycle of the building will maintain low Carbon Emissions.
- 4.7 The first stage of this process is to establish the baseline emissions on which the reductions will be based.
- 4.8 This is done using SbEM (Simplified Building Energy Model) for non-residential buildings.

5.0 Baseline Emissions

- 5.1 The baseline emissions on which reduction figures are based are calculated using SAP for residential buildings.
- 5.2 SAP calculates a notional building using the baseline Building Regulations parameters and represents the minimum allowable standard for the energy performance of the building to meet Part L.
- 5.3 The parameters used are defined by the methodology and represent a target upon which improvements can be measured.
- 5.4 The GLA emissions reporting tool provides the baseline emissions. The baseline emissions are shown below.

R/o 137 Turnpike Lane	
Regulated Emissions	Baseline Emissions
	1.3 Tonnes CO ₂ /Year

Table 1 – Baseline Emissions

6.0 Be Lean Strategy

- 6.1 The next stage, once the baseline has been established, is to make improvements within the "Be Lean" category. This includes improving the U Values and the reduction of thermal bridging.
- 6.2 At this stage and Air Source Heat Pump with an efficiency of 264% for heating and 286% for heating has been used in accordance with London Plan energy statement guidance.
- 6.3 The proposed U-values, with the relevant Part L backstop are shown below.
- 6.4 Following the implementation of these passive design measures including the building services, the reduction in emissions at the 'Be Lean' stage have been calculated these are shown below.

Element	Value Used (Commercial)
External Walls	0.15 W/m ² K
Ground Floor	0.12 W/m ² k
Flat Roof	0.12 W/m ² k
Sloping Ceiling	0.12 W/m ² k
Openings (including glazed doors)	1.20 W/m ² K
Rooflights	1.20 W/m ² K
Air Permeability	5

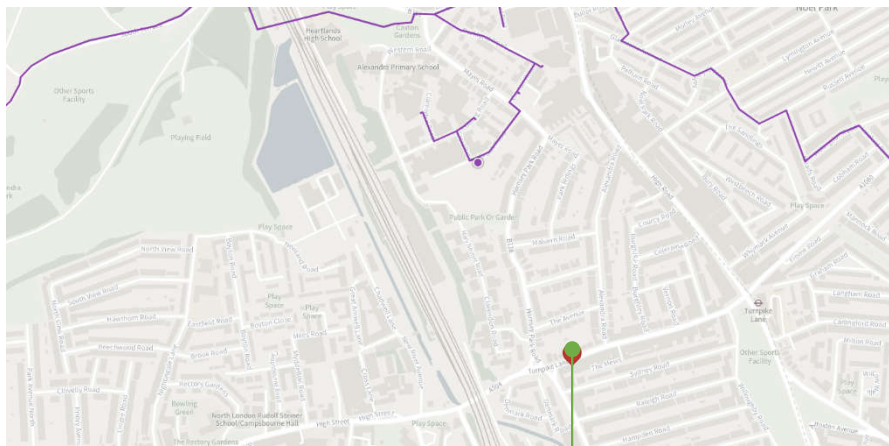
Table 2- Passive Design U-values

R/o 137 Turnpike Lane - Be Lean Emissions			
	Baseline Emissions	Be Lean Emissions	% Reduction
Regulated Emissions	1.3 (Tonnes CO ₂ /Year)	1.2 (Tonnes CO ₂ /Year)	11%

Table 3 - Be Lean Emissions

7.0 Be Clean Strategy

- 7.1 The Be Clean element of the hierarchy refers to supplying energy in a clean manner. This encompasses the use of energy efficient heating sources (such as heat pumps), decentralised energy and heat networks and the consideration of Combined Heat and Power.
- 7.2 The site does not sit within 800m of any **existing** decentralized energy or heating networks (as shown on the map below)
- 7.3 The site is also not located near any **proposed** heat networks
- 7.4 Due to the small scale of the proposal, CHP is also not a viable solution. London Plan guidance suggests that CHP is most suitable for developments of at least 500 units.
- 7.5 As there are currently no existing opportunities to connect to a heat network, and CHP is not suitable here, no changes have been made at the Be Clean stage.



Site Location

8.0 Be Green Strategy

- 8.1 The Be Green element of the hierarchy requires the consideration of renewable technologies to reduce emissions still further beyond the savings made at the Be Lean and Be Clean stages.
- 8.2 The technologies that are considered here are wind power and solar panels (photovoltaic (PV) or Solar Thermal and ground and air source heat pumps.
- 8.3 Wind power is not suitable in a location such as this. Wind turbines tend to perform poorly in built-up areas.
- 8.4 Any wind that is received on the site would be too intermittent and turbulent to provide any meaningful reduction in emissions.
- 8.5 Ground Source Heat pumps are also unlikely to be a viable proposition due to the ground disturbance required in their installation.
- 8.6 Air Source Heat Pumps (ASHP) however are a suitable solution in this instance and provide substantial improvements in CO₂ emissions when combined with a high-performing fabric such as proposed here.
- 8.7 It is proposed that an ASHP with an efficiency of 474% will provide heating and hot water to the development. The system will be designed to run at a temperature between 55°C and 60°C.
- 8.8 Photovoltaics panels are also considered feasible for this site. It is proposed that a total of 3 kWp of PV will be installed facing south. Using 0.5 kW panels, this will require six panels.
- 8.9 The reductions in emissions at the Be Green stage are shown below

R/o 137 Turnpike Lane - Be Green Emissions			
	Be Lean Emissions	Be Green Emissions	% Reduction
Regulated Emissions	1.3 (Tonnes CO ₂ /Year)	0.7 (Tonnes CO ₂ /Year)	37%

Table 5 - Be Green Emissions

9.0 Summary of Results

- 9.1 The tables below give the percentage improvement in emissions at each stage of the hierarchy and the overall savings made over Part L of the Building Regulations.
- 9.2 It is proposed that the building will be provided with increased U values (as shown above), and an ASHP.
- 9.3 The figures below have been calculated using the GLA carbon emission reporting tool and show the total CO₂ emissions expected.

R/o 137 Turnpike Lane	CO ₂ Emissions (Tonnes)	% Reduction
Baseline (Part L 2022)	1.3	
After energy demand reduction	1.2	11%
After heat network / CHP	1.2	0%
After renewable energy	0.6	37%
Total Savings	0.7	48%

Table 6 – Carbon emissions savings at each stage of the Energy Hierarchy

Renewable Technologies Emissions			
	Total Emissions W/o Renewables	Total emissions with Renewables	% Reduction
Regulated Emissions	1.2 (Tonnes CO ₂ /Year)	0.7 (Tonnes CO ₂ /Year)	37%

Table 7 – Carbon emissions savings from renewable technology

10.0 Conclusions

- 10.1 This Energy Statement has been produced to accompany an application for the proposed Storage Unit to the rear of 137 Turnpike Lane will meet the policy requirement of achieving a 35% reduction in emissions through the Be Lean, Be Clean, Be Green hierarchy.
- 10.2 In doing so, preliminary SAP calculations have been undertaken using the information available and sensible assumptions on construction and M&E parameters.
- 10.3 The baseline figures have been calculated and improvements made to the fabric and plant proposed for the scheme.
- 10.4 The measures proposed are detailed above summarise at Be Lean as
- Significant fabric improvements
 - MVHR
 - Good air tightness
- 10.5 The measures proposed at Be Green can be summarised as
- ASHP with an efficiency of at least 474%
 - 3kWp of PV panels
- 10.6 The results in Section 10 show that an overall reduction of 48% of regulated CO₂ emissions is achieved, using the GLA's carbon emission reporting spreadsheet. This greatly exceeds the target and provides room for changes should they be required through the detailed design process.
- 10.7 The results also show that the policy requirement to achieve a minimum of 20% reduction in predicted carbon dioxide emissions through the use of onsite renewable technology will also be achieved.
- 10.8 The total remaining emissions are 0.7 tonnes.
- 10.9 The required offset payment in Haringey is currently £95 per tonne over 30 years. Therefore, the total offset payment is $(0.7 \times 95 \times 30) = £1,995$.



T16 Design Ltd.

T: 01206 572452

E: info@t16design.com

W: www.t16design.com

© 2024



Appendix A – Sbem Assumption and Calculations



Job Name: Storage Yard, Turnpike Lane

Job Number: 5536

Assessor: JW

Date and/or version: 07 March 2024 - Ver.01

Building Regulations 2021

Element	Information for Design Stage	Information required at As Built Stage
Exposed walls	0.15 W/m ²	Letter confirming construction details and u-values
Sloping ceiling	0.12 W/m ²	Letter confirming construction details and u-values
Exposed Flat Roof	0.12 W/m ²	Letter confirming construction details and u-values
Exposed Floor	0.14 W/m ²	Letter confirming construction details and u-values
Air Tightness	Minimum 5 at 50 pa (m ³ /hr-m ²)	Air Pressure Test Certificate
Rooflights	Maximum 1.2 W/m ²	Manufacturer's details
Openings (glazed areas including doors)	Maximum 1.2 W/m ² (including frame)	BFRC certificates
Minimum Luminous efficacy	130 (Lumens/W) with LOR of 100%	Detailed specification and letter of confirmation of installed items.
Lamp Type	LED	Detailed specification and letter of confirmation of installed items.
Heating/hot water minimum efficiencies (BE LEAN)	ASHP with SEER of 2.64 for heating and 2.86 for hot water.	
Heating/hot water minimum efficiencies (BE GREEN)	ASHP with SEER of 4.74 for heating and hot water.	Manual. ETL specification or Certificate of Installation.
PV Panels	3KWp facing south.	MCS certification or equivalent.
Local Extract	Maximum 0.5 (W/l-s) Specific Fan Power in toilet areas.	make and model numbers
Ventilation	Natural ventilation assumed throughout.	N/A

Project name

Storage Yard BE LEAN

As designed

Date: Wed Mar 06 15:10:16 2024

Administrative information

Building Details

Address: Rear of 137 Turnpike Lane, London, N8 0DU

Certifier details

Name: Jim Westover

Telephone number: 07969 220992

Address: 28 Florida Street, London, E2 6AL

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.d.0

Interface to calculation engine: iSBEM

Interface to calculation engine version: v6.1.d

BRUKL compliance module version: v6.1.d.0

Foundation area [m²]: 190The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	3.4
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	3.03
Target primary energy rate (TPER), kWh/m ² annum	35.87
Building primary energy rate (BPER), kWh/m ² annum	32.41
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.15	0.32	SW
Floors	0.18	0.08	0.1	Floor
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.12	0.12	Flat ceiling
Windows** and roof windows	1.6	1.2	1.2	Storage window and door
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	-	-	No external personnel doors
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- ASHP

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.64	-	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- Heat pump

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	2.86	-
Standard value	2*	N/A
* Standard shown is for all types except absorption and gas engine heat pumps.		

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
Ground floor combined WCs	0.5	-	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
Standard value		95	80	0.3
Ground floor storage		130	-	-
Ground floor circulation		130	-	-
Ground floor combined WCs		130	-	-
First floor Office		130	-	-
First Floor WC one		130	-	-
First Floor WC two		130	-	-
FF circulator area		130	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Ground floor storage	NO (-92.5%)	NO
First floor Office	YES (+78.5%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	380.1	380.1
External area [m ²]	602.9	602.9
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	5	5
Average conductance [W/K]	88.92	149.26
Average U-value [W/m ² K]	0.15	0.25
Alpha value* [%]	22.93	98.5

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area Building Type

Retail/Financial and Professional Services
 Restaurants and Cafes/Drinking Establishments/Takeaways
 Offices and Workshop Businesses
 General Industrial and Special Industrial Groups

100 Storage or Distribution

Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools
 Residential Institutions: Universities and Colleges
 Secure Residential Institutions
 Residential Spaces
 Non-residential Institutions: Community/Day Centre
 Non-residential Institutions: Libraries, Museums, and Galleries
 Non-residential Institutions: Education
 Non-residential Institutions: Primary Health Care Building
 Non-residential Institutions: Crown and County Courts
 General Assembly and Leisure, Night Clubs, and Theatres
 Others: Passenger Terminals
 Others: Emergency Services
 Others: Miscellaneous 24hr Activities
 Others: Car Parks 24 hrs
 Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	5.26	10.59
Cooling	0	0
Auxiliary	2.9	1.46
Lighting	11.69	10.48
Hot water	1.37	1.37
Equipment*	41.46	41.46
TOTAL **	21.21	23.9

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>0</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	178.25	214.38
Primary energy [kWh/m ²]	32.41	35.87
Total emissions [kg/m ²]	3.03	3.4

HVAC Systems Performance										
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	44.6	133.7	5.3	0	2.9	2.36	0	2.64	0
	Notional	100.7	113.7	10.6	0	1.5	2.64	0	----	----

Key to terms	
Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Project name

Storage Yard BE GREEN**As designed**

Date: Wed Mar 06 15:14:07 2024

Administrative information

Building Details

Address: Rear of 137 Turnpike Lane, London, N8 0DU

Certifier details

Name: Jim Westover

Telephone number: 07969 220992

Address: 28 Florida Street, London, E2 6AL

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.d.0

Interface to calculation engine: iSBEM

Interface to calculation engine version: v6.1.d

BRUKL compliance module version: v6.1.d.0

Foundation area [m²]: 190The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	3.4
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	2.6
Target primary energy rate (TPER), kWh/m ² annum	35.87
Building primary energy rate (BPER), kWh/m ² annum	27.99
Do the building's emission and primary energy rates exceed the targets?	BER ≤ TER BPER ≤ TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.15	0.32	SW
Floors	0.18	0.08	0.1	Floor
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.12	0.12	Flat ceiling
Windows** and roof windows	1.6	1.2	1.2	Storage window and door
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	-	-	No external personnel doors
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check.

*** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m²K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
m ³ /(h.m ²) at 50 Pa	8	5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- ASHP

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.74	-	-	-	-
Standard value	2.5*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- Heat pump

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter
NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.	

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
Ground floor combined WCs	0.5	-	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
Standard value		95	80	0.3
Ground floor storage		130	-	-
Ground floor circulation		130	-	-
Ground floor combined WCs		130	-	-
First floor Office		130	-	-
First Floor WC one		130	-	-
First Floor WC two		130	-	-
FF circulator area		130	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Ground floor storage	NO (-92.5%)	NO
First floor Office	YES (+78.5%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m ²]	380.1	380.1
External area [m ²]	602.9	602.9
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	5	5
Average conductance [W/K]	88.92	149.26
Average U-value [W/m ² K]	0.15	0.25
Alpha value* [%]	22.93	98.5

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area Building Type

Retail/Financial and Professional Services
 Restaurants and Cafes/Drinking Establishments/Takeaways
 Offices and Workshop Businesses
 General Industrial and Special Industrial Groups

100 Storage or Distribution

Hotels
 Residential Institutions: Hospitals and Care Homes
 Residential Institutions: Residential Schools
 Residential Institutions: Universities and Colleges
 Secure Residential Institutions
 Residential Spaces
 Non-residential Institutions: Community/Day Centre
 Non-residential Institutions: Libraries, Museums, and Galleries
 Non-residential Institutions: Education
 Non-residential Institutions: Primary Health Care Building
 Non-residential Institutions: Crown and County Courts
 General Assembly and Leisure, Night Clubs, and Theatres
 Others: Passenger Terminals
 Others: Emergency Services
 Others: Miscellaneous 24hr Activities
 Others: Car Parks 24 hrs
 Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	2.93	10.59
Cooling	0	0
Auxiliary	2.9	1.46
Lighting	11.69	10.48
Hot water	0.87	1.37
Equipment*	41.46	41.46
TOTAL **	18.38	23.9

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>0</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	178.25	214.38
Primary energy [kWh/m ²]	27.99	35.87
Total emissions [kg/m ²]	2.6	3.4

HVAC Systems Performance										
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	44.6	133.7	2.9	0	2.9	4.23	0	4.74	0
	Notional	100.7	113.7	10.6	0	1.5	2.64	0	----	----

Key to terms

- Heat dem [MJ/m2] = Heating energy demand
- Cool dem [MJ/m2] = Cooling energy demand
- Heat con [kWh/m2] = Heating energy consumption
- Cool con [kWh/m2] = Cooling energy consumption
- Aux con [kWh/m2] = Auxiliary energy consumption
- Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
- Cool SSEER = Cooling system seasonal energy efficiency ratio
- Heat gen SSEFF = Heating generator seasonal efficiency
- Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
- ST = System type
- HS = Heat source
- HFT = Heating fuel type
- CFT = Cooling fuel type