

Project name

MSC**As designed**

Date: Mon Apr 28 16:10:26 2025

Administrative information

Building Details

Address: LONDON, N6 4AY

Certifier details

Name:

Telephone number:

Address: , ,

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: DesignBuilder SBEM

Interface to calculation engine version: v7.3.1

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 658.98The 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	3.36
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	3.27
Target primary energy rate (TPER), kWh _{PE} /m ² annum	35.13
Building primary energy rate (BPER), kWh _{PE} /m ² annum	34.65
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	0.3	3. SF MZ CAFE - MAZ CAFE_W_7
Floors	0.18	0.11	0.14	1. GF CORR N - STAIR 2_F_3
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.12	0.12	0. LGF SP HALL 2 - SPORTS HALL 2_R_4
Windows** and roof windows	1.6	1.4	1.4	2. FF CORR W - FF CORR M_G_10
Rooflights***	2.2	1.7	1.7	0. LGF SP HALL 2 - SPORTS HALL 2_G_5
Personnel doors^	1.6	1.5	1.5	1. GF CORR N - STAIR 2_D_31
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	3

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	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Dry Sport Hall Warm air heating

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	-	-	1.4	0.85
Standard value	2.5*	N/A	N/A	1.9^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					
^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.					

2- Heat Pump with UFH

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.8	-	-	-	-
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					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

3- VRF with Fan coil

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.5	6.5	-	-	-
Standard value	2.5*	5	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- DHW from Electric

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	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			
0. LGF CORR N - CLNR STORE	-	-	-	-	1	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
1. GF CORR N - WC	-	-	0.3	-	-	-	-	-	-	-	N/A
1. GF REST - KITCHEN	-	-	-	-	1	-	-	-	-	0.8	N/A
2. FF CORR S - VISITOR WC 1	-	-	0.3	-	-	-	-	-	-	-	N/A
2. FF CORR S - VISITOR WC 2	-	-	0.3	-	-	-	-	-	-	-	N/A
2. FF CORR N - CLASSROOM	-	-	-	-	1	-	-	-	-	0.8	N/A
2. FF CORR N - IT FACILITY	-	-	-	-	1	-	-	-	-	0.8	N/A
2. FF CORR S - MAIN FOYER	-	-	-	-	1	-	-	-	-	0.8	N/A
2. FF CORR S - RECEPTION	-	-	-	-	1	-	-	-	-	0.8	N/A
2. FF CORR S - OFFICE	-	-	-	-	1	-	-	-	-	0.8	N/A
2. FF CORR S - CENTRAL OFFICE	-	-	-	-	1	-	-	-	-	0.8	N/A
2. FF GYM M - FF GYM M	-	-	-	-	1	-	-	-	-	0.8	N/A
3. SF MZ CAFE - MAZ CAFE	-	-	-	-	1	-	-	-	-	0.8	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
1. GF CCF SPORTS - CCF STORES		95	-	-
1. GF CCF SPORTS - PLANT		95	-	-
1. GF RR STR - REFUSE & RECYCLE		95	-	-
1. GF RR STR - PLANT		95	-	-
0. LGF CORR N - CLNR STORE		95	-	-
0. LGF CORR N - SPORTS STORES		95	-	-
0. LGF CORR S - UNUSED ROOMS		95	-	-
0. LGF CORR S - STORES		95	-	-
1. GF CORR N - PLANT		95	-	-
1. GF CORR N - CYCLES STORE		95	-	-
1. GF REST - STORES 1		95	-	-
0. LGF SP HALL 2 - SPORTS HALL 2		109	-	-
1. GF REST - SQUASH COURT 2		95	-	-
1. GF REST - SQUASH COURT 1		95	-	-
2. FF CORR W - FF CORR M		95	-	-
0. LGF CORR N - STAIR 2		95	-	-
0. LGF CORR N - STAIR 1		95	-	-
0. LGF CORR S - LOBBY & STAIRS		95	-	-
0. LGF CORR S - STAIR 1		95	-	-
1. GF CORR N - STAIR 2		95	-	-
1. GF CORR N - WC		95	-	-
1. GF CORR N - STAIR 1		95	-	-
2. FF CORR N - STAIR 2		95	-	-
2. FF CORR N - STAIR 1		95	-	-
1. GF REST - CORR 1		95	-	-
1. GF REST - KITCHEN		95	-	-
2. FF CORR S - CIRR		95	-	-

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
2. FF CORR S - LOBBY & STAIR		95	-	-
2. FF CORR S - VISITOR WC 1		95	-	-
2. FF CORR S - VISITOR WC 2		95	-	-
3. SF CORR N - STAIR		95	-	-
3. SF MZ CAFE - STAIR		95	-	-
3. SF CORR W - MEZZANINE STUDIO		95	-	-
2. FF CORR N - CLASSROOM		95	-	-
2. FF CORR N - IT FACILITY		95	-	-
2. FF CORR S - MAIN FOYER		95	-	-
2. FF CORR S - RECEPTION		95	-	-
2. FF CORR S - OFFICE		95	-	-
2. FF CORR S - CENTRAL OFFICE		95	-	-
2. FF GYM M - FF GYM M		95	-	-
3. SF MZ CAFE - MAZ CAFE		95	-	-

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?
0. LGF SP HALL 2 - SPORTS HALL 2	NO (-97.5%)	YES
1. GF REST - SQUASH COURT 2	N/A	N/A
1. GF REST - SQUASH COURT 1	N/A	N/A
3. SF CORR N - STAIR	N/A	N/A
3. SF CORR W - MEZZANINE STUDIO	NO (-78%)	NO
2. FF CORR N - CLASSROOM	NO (-38.7%)	NO
2. FF CORR N - IT FACILITY	NO (-26.4%)	NO
2. FF CORR S - MAIN FOYER	N/A	N/A
2. FF CORR S - RECEPTION	N/A	N/A
2. FF CORR S - OFFICE	N/A	N/A
2. FF CORR S - CENTRAL OFFICE	N/A	N/A
2. FF GYM M - FF GYM M	NO (-17.6%)	NO
3. SF MZ CAFE - MAZ CAFE	NO (-86.8%)	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]	2635.9	2635.9
External area [m ²]	7276.5	7276.5
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	3	4
Average conductance [W/K]	1236.27	2205.73
Average U-value [W/m ² K]	0.17	0.3
Alpha value* [%]	15.63	26.05

* 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
 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

100

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	2.7	7.03
Cooling	0.73	0.75
Auxiliary	3.67	2.94
Lighting	7.94	5.15
Hot water	11.8	11.8
Equipment*	16.96	16.96
TOTAL **	26.83	27.67

* 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	4.28	4.28
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>4.28</i>	<i>4.28</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	102.79	156.03
Primary energy [kWh _{PE} /m ²]	34.65	35.13
Total emissions [kg/m ²]	3.27	3.36

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] No Heating or Cooling										
	Actual	143.8	149.5	0	0	0.1	0	0	0	0
	Notional	151.7	150.6	0	0	0.1	0	0	----	----
[ST] Central heating using air distribution, [HS] ASHP, [HFT] Electricity, [CFT] Natural Gas										
	Actual	24.3	9	1.8	0	6.6	3.85	0	3.5	0
	Notional	73.1	47.3	7.7	0	5.6	2.64	0	----	----
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Natural Gas										
	Actual	71.5	32.2	5.6	0	1.5	3.57	0	3.8	0
	Notional	86.8	57.2	9.1	0	1.7	2.64	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	34.9	62.3	2.3	3.7	3.8	4.19	4.62	4.5	6.5
	Notional	74.2	61.6	7.8	3.9	1.7	2.64	4.4	----	----

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