

Project name

81-84 Chalk Farm Road

As designed

Date: Thu Feb 23 14:01:04 2023

Administrative information**Building Details**

Address: 81-84 Chalk Farm Road, LONDON, NW1 8AL

Certifier details

Name: Neil Ingham

Telephone number:

Address: Holborn Tower, 137-144 High Holborn London, WC1V 6PL

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.0

Interface to calculation engine: DesignBuilder SBEM

Interface to calculation engine version: v7.1.4

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

Foundation area [m²]: 290.85**The CO₂ emission and primary energy rates of the building must not exceed the targets**

The building does not comply with England Building Regulations Part L 2021

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	6.68
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	15.46
Target primary energy rate (TPER), kWh _{PE} /m ² annum	41.07
Building primary energy rate (BPER), kWh _{PE} /m ² annum	105.99
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	0.55	0.55	Floor 0 - WCs_W_7
Floors	0.18	0.25	0.25	Floor 0 - WCs_S_3
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.18	0.18	Floor 1 - Stairs_R_4
Windows** and roof windows	1.6	1.8	1.8	Floor 1 - Stairs_G_10
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.8	1.8	Floor 0 - Circ and stairs_D_12
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_a-Calc = Calculated area-weighted average U-values [W/(m²K)]
U_i-Calc = Calculated maximum individual element 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	25

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- Gas heat

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.84	-	-	-	-
Standard value	0.93*	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 gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

2- Gas heat/Mech Cooling

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.84	2.6	-	-	-
Standard value	0.93*	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 gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

1- From Main heating

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	0.002
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			
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		Zone	Standard
Floor 0 - WCs	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Floor 0 - WC Amb	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Floor 1 - WCs	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Floor 2 - WCs	-	-	0.5	-	-	-	-	-	-	-	-	N/A
Floor 0 - Classrooms 1	-	-	-	-	0.5	-	-	-	-	0.7	-	N/A
Floor 0 - Office 1	-	-	-	-	0.5	-	-	-	-	0.7	-	N/A
Floor 0 - Office	-	-	-	-	0.5	-	-	-	-	0.7	-	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
Floor 0 - Breakout	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 1 - Breakout	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 1 - Classrooms	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 1 - Office	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 1 - Machine room	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 1 - Servers	-	-	0.5	-	-	-	-	-	-		-	N/A
Floor 2 - Classrooms back	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 2 - Classrooms	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 2 - Breakout	-	-	-	-	0.5	-	-	-	-		0.7	N/A
Floor 2 - Offices	-	-	-	-	0.5	-	-	-	-		0.7	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
Floor 0 - Store		51	-	-
Floor 0 - Stores		51	-	-
Floor 1 - Store 1		51	-	-
Floor 1 - Store 2		51	-	-
Floor 1 - Store		51	-	-
Floor 1 - Plant		51	-	-
Floor 0 - WCs		51	-	-
Floor 0 - WC Amb		51	-	-
Floor 0 - Circ and stairs		51	-	-
Floor 0 - Circ and lift		51	-	-
Floor 1 - Stairs		51	-	-
Floor 1 - WCs		51	-	-
Floor 1 - Circ		51	-	-
Floor 2 - Circ		51	-	-
Floor 2 - WCs		51	-	-
Floor 2 - Stairs		51	-	-
Floor 2 - Staff room		51	-	-
Floor 0 - Classrooms 1		51	-	-
Floor 0 - Office 1		51	-	-
Floor 0 - Office		51	-	-
Floor 0 - Breakout		51	-	-
Floor 0 - Reception		51	51	2.647
Floor 1 - Breakout		51	-	-
Floor 1 - Classrooms		51	-	-
Floor 1 - Office		51	-	-
Floor 1 - Machine room		51	-	-
Floor 1 - Servers		51	-	-
Floor 2 - Classrooms back		51	-	-
Floor 2 - Classrooms		51	-	-

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
Floor 2 - Breakout		51	-	-
Floor 2 - Offices		51	-	-

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?
Floor 0 - Stores	N/A	N/A
Floor 0 - Classrooms 1	N/A	N/A
Floor 0 - Office 1	N/A	N/A
Floor 0 - Office	NO (-58.6%)	NO
Floor 0 - Breakout	YES (+95.1%)	NO
Floor 0 - Reception	NO (-35.5%)	NO
Floor 1 - Breakout	YES (+12.8%)	NO
Floor 1 - Classrooms	N/A	N/A
Floor 1 - Office	NO (-38.5%)	NO
Floor 1 - Machine room	N/A	N/A
Floor 1 - Servers	N/A	N/A
Floor 2 - Classrooms back	YES (+270.9%)	NO
Floor 2 - Classrooms	NO (-1.7%)	NO
Floor 2 - Breakout	YES (+190.7%)	NO
Floor 2 - Offices	NO (-19%)	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]	918.6	918.6
External area [m ²]	1471.8	1471.8
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	25	3
Average conductance [W/K]	773.83	523.98
Average U-value [W/m ² K]	0.53	0.36
Alpha value* [%]	11.36	20.49

* 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	36.2	11.94
Cooling	7.96	2.78
Auxiliary	4.26	4.75
Lighting	17.68	6.39
Hot water	17.96	18.84
Equipment*	17.34	17.34
TOTAL**	84.07	44.71

* 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	10.57
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>10.57</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	186.18	119.1
Primary energy [kWh _{PE} /m ²]	105.99	41.07
Total emissions [kg/m ²]	15.46	6.68

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 SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] No Heating or Cooling									
	Actual	443.9	110.4	0	0	0	0	0	0
	Notional	141.5	119.3	0	0	0	0	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Natural Gas									
	Actual	177.4	20	65.7	0	3.5	0.75	0	0.84
	Notional	88.2	88.6	28.5	0	3.4	0.86	0	----
[ST] Split or multi-split system, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
	Actual	74.6	79.3	26.5	11.9	4.6	0.78	1.85	0.84
	Notional	18.1	66	5.9	4.2	3.9	0.86	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