

Project name

**81-84 Chalk Farm Road**

As designed

Date: Thu Feb 23 14:20:47 2023

**Administrative information****Building Details**

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

**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

**Certifier details**

Name: Neil Ingham

Telephone number:

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

Foundation area [m<sup>2</sup>]: 290.85**The CO<sub>2</sub> 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 <sub>2</sub> emission rate (TER), kgCO <sub>2</sub> /m <sup>2</sup> annum	3.27
Building CO <sub>2</sub> emission rate (BER), kgCO <sub>2</sub> /m <sup>2</sup> annum	4.57
Target primary energy rate (TPER), kWh <sub>PE</sub> /m <sup>2</sup> annum	34.24
Building primary energy rate (BPER), kWh <sub>PE</sub> /m <sup>2</sup> annum	47.22
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 <sub>a</sub> -Limit	U <sub>a</sub> -Calc	U <sub>i</sub> -Calc	First surface with maximum value
Walls*	0.26	0.28	0.28	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	0.15	0.15	Floor 1 - Stairs_R_4
Windows** and roof windows	1.6	1.4	1.4	Floor 1 - Stairs_G_10
Rooflights***	2.2	-	-	No external rooflights
Personnel doors <sup>^</sup>	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<sub>a</sub>-Limit = Limiting area-weighted average U-values [W/(m<sup>2</sup>K)]U<sub>i</sub>-Calc = Calculated maximum individual element U-values [W/(m<sup>2</sup>K)]U<sub>a</sub>-Calc = Calculated area-weighted average U-values [W/(m<sup>2</sup>K)]

\* 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.

<sup>^</sup> For fire doors, limiting U-value is 1.8 W/m<sup>2</sup>K

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 <sup>3</sup> /(h.m <sup>2</sup> ) at 50 Pa	8	10

## 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- Panel Rads

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

### 2- Heat pump heat/Cooling

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.3	6.1	-	-	-
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					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

### 1- PoU

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.001
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	ID of system type	SFP [W/(l/s)]									HR efficiency	
		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		
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		-	-	-	-	1	-	-	-	-	0.8	N/A
Floor 0 - Office 1		-	-	-	-	1	-	-	-	-	0.8	N/A
Floor 0 - Office		-	-	-	-	1	-	-	-	-	0.8	N/A
Floor 0 - Breakout		-	-	-	-	1	-	-	-	-	0.8	N/A

Zone name	SFP [W/(l/s)]										HR efficiency	
	A	B	C	D	E	F	G	H	I	Zone	Standard	
<b>ID of system type</b>	<b>0.3</b>	<b>1.1</b>	<b>0.5</b>	<b>2.3</b>	<b>2</b>	<b>0.5</b>	<b>0.5</b>	<b>0.4</b>	<b>1</b>			
<b>Standard value</b>	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1			
Floor 1 - Breakout	-	-	-	-	1	-	-	-	-	0.8	N/A	
Floor 1 - Classrooms	-	-	-	-	1	-	-	-	-	0.8	N/A	
Floor 1 - Office	-	-	-	-	1	-	-	-	-	0.8	N/A	
Floor 1 - Machine room	-	-	-	-	1	-	-	-	-	0.8	N/A	
Floor 1 - Servers	-	-	0.5	-	-	-	-	-	-	-	N/A	
Floor 2 - Classrooms back	-	-	-	-	1	-	-	-	-	0.8	N/A	
Floor 2 - Classrooms	-	-	-	-	1	-	-	-	-	0.8	N/A	
Floor 2 - Breakout	-	-	-	-	1	-	-	-	-	0.8	N/A	
Floor 2 - Offices	-	-	-	-	1	-	-	-	-	0.8	N/A	

Zone name	General lighting and display lighting	General luminaire	Display light source	
		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m <sup>2</sup> ]
<b>Standard value</b>	95	80	80	0.3
Floor 0 - Store	100	-	-	-
Floor 0 - Stores	100	-	-	-
Floor 1 - Store 1	100	-	-	-
Floor 1 - Store 2	100	-	-	-
Floor 1 - Store	100	-	-	-
Floor 1 - Plant	100	-	-	-
Floor 0 - WCs	100	-	-	-
Floor 0 - WC Amb	100	-	-	-
Floor 0 - Circ and stairs	100	-	-	-
Floor 0 - Circ and lift	100	-	-	-
Floor 1 - Stairs	100	-	-	-
Floor 1 - WCs	100	-	-	-
Floor 1 - Circ	100	-	-	-
Floor 2 - Circ	100	-	-	-
Floor 2 - WCs	100	-	-	-
Floor 2 - Stairs	100	-	-	-
Floor 2 - Staff room	100	-	-	-
Floor 0 - Classrooms 1	100	-	-	-
Floor 0 - Office 1	100	-	-	-
Floor 0 - Office	100	-	-	-
Floor 0 - Breakout	100	-	-	-
Floor 0 - Reception	100	90	1.5	-
Floor 1 - Breakout	100	-	-	-
Floor 1 - Classrooms	100	-	-	-
Floor 1 - Office	100	-	-	-
Floor 1 - Machine room	100	-	-	-
Floor 1 - Servers	100	-	-	-
Floor 2 - Classrooms back	100	-	-	-
Floor 2 - Classrooms	100	-	-	-
Floor 2 - Breakout	100	-	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m <sup>2</sup> ]
	Standard value	95	80	0.3
Floor 2 - Offices		100	-	-

**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 <sup>2</sup> ]	918.6	918.6
External area [m <sup>2</sup> ]	1471.8	1471.8
Weather	LON	LON
Infiltration [m <sup>3</sup> /hm <sup>2</sup> @ 50Pa]	10	3
Average conductance [W/K]	524.59	523.98
Average U-value [W/m <sup>2</sup> K]	0.36	0.36
Alpha value* [%]	16.76	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/m<sup>2</sup>]

	Actual	Notional
Heating	13.06	6.43
Cooling	3.6	2.78
Auxiliary	6.62	3.24
Lighting	7.23	6.39
Hot water	11.21	10.99
Equipment*	17.34	17.34
<b>TOTAL**</b>	<b>41.72</b>	<b>29.83</b>

\* 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/m<sup>2</sup>]

	Actual	Notional
Photovoltaic systems	11.46	6.96
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>11.46</i>	<i>6.96</i>

## Energy & CO<sub>2</sub> Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m <sup>2</sup> ]	141.44	119.1
Primary energy [kWh <sub>PE</sub> /m <sup>2</sup> ]	47.22	34.24
Total emissions [kg/m <sup>2</sup> ]	4.57	3.27

## HVAC Systems Performance

System Type	Heat dem MJ/m <sup>2</sup>	Cool dem MJ/m <sup>2</sup>	Heat con kWh/m <sup>2</sup>	Cool con kWh/m <sup>2</sup>	Aux con kWh/m <sup>2</sup>	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
<b>[ST] No Heating or Cooling</b>									
<b>Actual</b>	285.2	96.4	0	0	0	0	0	0	0
<b>Notional</b>	141.5	119.3	0	0	0	0	0	----	----
<b>[ST] Other local room heater - unfanned, [HS] Room heater, [HFT] Electricity, [CFT] Natural Gas</b>									
<b>Actual</b>	116.9	20.6	40.6	0	1.9	0.8	0	1	0
<b>Notional</b>	88.2	88.6	18.3	0	2.2	1.34	0	----	----
<b>[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity</b>									
<b>Actual</b>	36.6	88.5	2.4	5.4	9.1	4.22	4.56	4.3	6.1
<b>Notional</b>	18.1	66	1.9	4.2	3.9	2.64	4.4	----	----

### Key to terms

Heat dem [MJ/m <sup>2</sup> ]	= Heating energy demand
Cool dem [MJ/m <sup>2</sup> ]	= Cooling energy demand
Heat con [kWh/m <sup>2</sup> ]	= Heating energy consumption
Cool con [kWh/m <sup>2</sup> ]	= Cooling energy consumption
Aux con [kWh/m <sup>2</sup> ]	= 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