BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Camden Road - AG

As designed

Date: Mon Jun 17 16:48:35 2024

Administrative information

Building Details

Address: Camden Road, London,

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.26

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: Cory Skrzypkowski

Telephone number: 01159 754141

Address: Unit C4, Park Lane Business Park, Basford, NG6 0DW

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	8.4
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	8.4
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	0.5
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.13	0.13	"YS00000A_W3_A0"
Floor	0.25	0.1	0.11	"YS000007_F"
Roof	0.25	0.1	0.1	"RV000008_C"
Windows***, roof windows, and rooflights	2.2	0.9	0.9	"RC000000_W-1_O2"
Personnel doors	2.2	1.58	1.58	"RC000000_W-1_O0"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

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

* There might be more than one surface where the maximum U-value occurs.
** 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.
N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
$m^3/(h.m^2)$ at 50 Pa	10	2.5

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	>0.95

1- Elec UFH - E

	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					YES

2- Main - VRF PURY-EM300/350YNW-A1

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	6.3	3.39	-	-	-
Standard value	2.5*	2.6	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. For types <=12 kW output, refer to EN 14825 for limiting standards.

1- SYST0013-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	4.3	0.04
Standard value	1	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
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 supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
0.0 - WC	-	-	0.3	-	-	-	-	-	-	-	N/A
0.0.5 Doc M WC	-	-	0.3	-	-	-	-	-	-	-	N/A
0.0.12 Doc M WC	-	-	0.3	-	-	-	-	-	-	-	N/A
0.0.1 Lobby	-	-	-	1.6	-	-	-	-	-	0.8	0.5
0.0.2 Interview Room	-	-	-	1.6	-	-	-	-	-	0.8	0.5
0.0.3 Office/Reception	-	-	-	1.6	-	-	-	-	-	0.8	0.5
0.0.4 Server Room	-	-	-	1.6	-	-	-	-	-	0.8	0.5
0.0.7 Staff Room	-	-	-	1.6	-	-	-	-	-	0.8	0.5
0.0.11 Community Room	-	-	-	1.6	-	-	-	-	-	0.8	0.5

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
0.0 - Circ	-	106	-	19
0.0 Stairwell	-	109	-	45
0.0.8 Bin Store	128	-	-	25
0.0.9 Bulky Waste Store	128	-	-	5
0.0.10 Buggy Store	128	-	-	8
-1 - Stairwell	-	109	-	47
-1 Plant	128	-	-	16
1.0 - Circulation	-	106	-	13
1.0 Stairwell	-	109	-	45
-1.0.2 Cleaners Store	128	-	-	10
-1.0.3 Store	128	-	-	14
-1.0.4 Plant	128	-	-	27
2.0 Stairwell	-	109	-	45
3.0 Stairwell	-	109	-	45
4.0 Stairwell	-	109	-	45
5.0 Stairwell	-	109	-	45
0.0 - WC	-	102	-	28
0.0.5 Doc M WC	-	102	-	31
0.0.12 Doc M WC	-	102	-	38
0.0.1 Lobby	-	106	-	55
0.0.2 Interview Room	100	-	-	76
0.0.3 Office/Reception	-	83	15	81
0.0.4 Server Room	128	-	-	7
0.0.7 Staff Room	134	-	-	86
0.0.11 Community Room	100	-	-	269

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
0.0.1 Lobby	NO (-26.8%)	NO
0.0.2 Interview Room	N/A	N/A
0.0.3 Office/Reception	NO (-66.9%)	NO
0.0.4 Server Room	N/A	N/A
0.0.7 Staff Room	NO (-78%)	NO
0.0.11 Community Room	NO (-68.2%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m²]	450.9	450.9
External area [m²]	2028	2028
Weather	LON	LON
Infiltration [m³/hm²@ 50Pa]	3	3
Average conductance [W/K]	288.87	780.88
Average U-value [W/m²K]	0.14	0.39
Alpha value* [%]	24.83	12.27

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

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
100	**B1 Offices and Workshop businesses**
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 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	2.31	6.33
Cooling	0.73	1.95
Auxiliary	1.76	1.15
Lighting	8.31	8.21
Hot water	0.47	0.45
Equipment*	9.78	9.78
TOTAL**	**13.58**	**18.09**

* 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	11.36	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	176.39	313.29
Primary energy* [kWh/m²]	37.94	49.03
Total emissions [kg/m²]	0.5	8.4

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

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	183	2.6	0	0	0	0	0	0	0
	Notional	273.1	67.4	0	0	0	0	0	---	---
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Natural Gas, [CFT] Electricity										
	Actual	148	9.3	48.8	0	7.9	0.84	0	1	0
	Notional	225.4	77.3	76.5	0	15.8	0.82	0	---	---
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	68.9	83.7	3.1	2.9	6	6.18	8.03	6.3	10.75
	Notional	136.6	100.5	15.6	7.8	2.6	2.43	3.6	---	---

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

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.13	"RV000008_W1"
Floor	0.2	0.1	"YS00000A_F"
Roof	0.15	0.1	"RV000008_C"
Windows, roof windows, and rooflights	1.5	0.9	"RC000000_W-1_O2"
Personnel doors	1.5	1.58	"RC000000_W-1_O0"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)]			$U_{i\text{-}Min}$ = Minimum individual element U-values [W/(m²K)]
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	2.5