

Project name

13 Fitzroy Street Baseline rev2**As built**

Date: Thu May 05 10:29:24 2022

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.13

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.13

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

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO₂ emission rate for the building must not exceed the target

The building does not comply with England Building Regulations Part L 2013

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	22.4
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	22.4
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	39.3
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 -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.37	5.88	LG000015:Surf[1]
Floor	0.25	0.22	0.22	VD000000:Surf[0]
Roof	0.25	0.25	0.25	NT000000:Surf[1]
Windows***, roof windows, and rooflights	2.2	1.83	2.2	3F00001F:Surf[2]
Personnel doors	2.2	-	-	No Personnel doors in building
Vehicle access & similar large doors	1.5	-	-	No Vehicle access doors in building
High usage entrance doors	3.5	-	-	No High usage entrance doors in building
U _a -Limit = Limiting area-weighted average U-values [W/(m ² K)] U _a -Calc = Calculated area-weighted average U-values [W/(m ² K)] U _i -Calc = Calculated maximum individual element U-values [W/(m ² K)] * 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	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	YES
Whole building electric power factor achieved by power factor correction	>0.95

1- Core and WC - BASELINE

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.87	-	0.2	0	-
Standard value	0.91*	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. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

2- Main system - BASELINE

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.87	2.5	0	2.5	0.65
Standard value	0.91*	2.55	N/A	1.6^	0.65
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. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

3- UFH - BASELINE

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.87	-	0.2	0	-
Standard value	0.91*	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. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

4- Server Room - BASELINE

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.87	2.5	-	0	-
Standard value	0.91*	3.2	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. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

"No HWS in project, or hot water is provided by HVAC system"

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
LGF - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
LGF - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
LGF - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
GF - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
GF - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
GF - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
1F - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
1F - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
1F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
2F - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
2F - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
2F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
3F - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
3F - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
3F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
4F - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
4F - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
4F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
5F - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
5F - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
5F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
6F - Male WC	-	-	0.8	-	-	-	-	-	-	-	N/A
6F - Female WC	-	-	0.8	-	-	-	-	-	-	-	N/A
6F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
6F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
6F - Disable WC	-	-	0.8	-	-	-	-	-	-	-	N/A
1F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
1F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
1F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
2F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
2F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
2F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
3F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
3F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
3F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
4F - Disabled WC	-	-	0.8	-	-	-	-	-	-	-	N/A
4F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A
4F - Unisex WC	-	-	0.8	-	-	-	-	-	-	-	N/A

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
LGF - Core		-	60	-	74

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
LGF - Bike Storage		60	-	-	41
LGF - Core		-	60	-	50
LGF - Male WC		-	60	-	135
LGF - Female WC		-	60	-	110
LGF - Disabled WC		-	60	-	45
LGF - Corridor		-	60	-	87
LGF - Substation Roms		60	-	-	518
LGF - Core		-	60	-	43
LGF - Generator Room		60	-	-	222
LGF - Security		60	-	-	123
GF - Core		-	60	-	50
GF - Male WC		-	60	-	135
GF - Female WC		-	60	-	110
GF - Disabled WC		-	60	-	45
GF - Core		-	60	-	43
GF - Corridor		-	60	-	87
GF - Corridor		-	60	-	57
GF - Core		-	60	-	74
1F - Core		-	60	-	50
1F - Male WC		-	60	-	135
1F - Female WC		-	60	-	110
1F - Disabled WC		-	60	-	45
1F - Core		-	60	-	43
1F - Corridor		-	60	-	87
1F - Corridor		-	60	-	57
1F - Core		-	60	-	74
2F - Core		-	60	-	50
2F - Male WC		-	60	-	135
2F - Female WC		-	60	-	110
2F - Disabled WC		-	60	-	45
2F - Core		-	60	-	43
2F - Corridor		-	60	-	87
2F - Corridor		-	60	-	57
2F - Core		-	60	-	74
3F - Core		-	60	-	50
3F - Male WC		-	60	-	135
3F - Female WC		-	60	-	110
3F - Disabled WC		-	60	-	45
3F - Core		-	60	-	43
3F - Corridor		-	60	-	87
3F - Corridor		-	60	-	57
3F - Core		-	60	-	74
4F - Core		-	60	-	50

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
4F - Male WC		-	60	-	135
4F - Female WC		-	60	-	110
4F - Disabled WC		-	60	-	45
4F - Core		-	60	-	43
4F - Corridor		-	60	-	87
4F - Corridor		-	60	-	57
4F - Core		-	60	-	74
5F - Core		-	60	-	50
5F - Male WC		-	60	-	135
5F - Female WC		-	60	-	110
5F - Disabled WC		-	60	-	45
5F - Core		-	60	-	43
5F - Corridor		-	60	-	87
5F - Corridor		-	60	-	57
6F - Core		-	60	-	50
6F - Male WC		-	60	-	135
6F - Female WC		-	60	-	110
6F - Disabled WC		-	60	-	45
6F - Core		-	60	-	43
6F - Corridor		-	60	-	57
Roof - Core		-	60	-	43
LGF - Storage		60	-	-	16
LGF - Substation		60	-	-	107
LGF - Corridor		-	60	-	65
Roof - Core 1		-	60	-	107
Roof - Plant		60	-	-	222
Roof - Plant		60	-	-	72
Roof - Plant		60	-	-	216
B - Core		-	60	-	74
B - Plant		60	-	-	636
B - Plant		60	-	-	463
B - Plant		60	-	-	127
6F - Corridor		-	60	-	72
6F - Corridor		-	60	-	42
6F - Unisex WC		-	60	-	39
6F - Disable WC		-	60	-	50
6F - Corridor WC		-	60	-	23
6F - Corridor		-	60	-	47
5F - Disabled WC		-	60	-	48
5F - Corridor		-	60	-	30
5F - Unisex WC		-	60	-	37
5F - Unisex WC		-	60	-	36
5F - Corridor		-	60	-	69

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
LGF - Core 3 Corridor		-	60	-	57
LGF - Store		60	-	-	12
GF - Unisex WCs		-	60	-	128
GF - Corridor		-	60	-	67
1F - Disabled WC		-	60	-	49
1F - Corridor WC		-	60	-	30
1F - Unisex WC		-	60	-	36
1F - Unisex WC		-	60	-	37
2F - Disabled WC		-	60	-	49
2F - Unisex WC		-	60	-	36
2F - Unisex WC		-	60	-	37
2F - Corridor WC		-	60	-	30
3F - Disabled WC		-	60	-	49
3F - Unisex WC		-	60	-	36
3F - Unisex WC		-	60	-	37
3F - Corridor WC		-	60	-	30
3F - Corridor		-	60	-	82
4F - Disabled WC		-	60	-	49
4F - Unisex WC		-	60	-	36
4F - Unisex WC		-	60	-	37
4F - Corridor WC		-	60	-	30
4F - Corridor		-	60	-	82
2F - Corridor		-	60	-	82
1F - Corridor		-	60	-	76
5F - Office Z3 - Perimeter N		60	-	-	952
5F - Office Z3 - Perimeter S		60	-	-	1076
5F - Office Z2 - Perimeter S		60	-	-	1021
3F - Office Z2 - Perimeter S		60	-	-	1021
3F - Office Z3 - Perimeter S		60	-	-	1075
3F - Office Z3 Middle		60	-	-	1419
3F - Office Z3 - Perimeter N		60	-	-	972
2F - Office Z3 - Perimeter S		60	-	-	1075
2F - Office Z3 - Middle		60	-	-	1418
2F - Office Z3 - Perimeter N		60	-	-	974
2F - Office Z2 - Perimeter S		60	-	-	1021
1F - Office Z2 - Perimeter S		60	-	-	1028
1F - Office Z3 - Perimeter N		60	-	-	973
1F - Office Z3 - Middle		60	-	-	1419
1F - Office Z3 - Perimeter S		60	-	-	1075
4F - Office Z3 - Middle		60	-	-	1419
4F - Office Z3 - Perimeter S		60	-	-	1075
4F - Office Z2 - Perimeter S		60	-	-	1021
4F - Office Z3 - Perimeter N		60	-	-	971

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
GF - Breakout Space 1		-	60	-	221
GF - Office Unit 02		60	-	-	793
LGF - Corridor		-	60	-	151
LGF - Male Changing Room		-	60	-	129
LGF - F Lockers		60	-	-	318
LGF - Female Changing Rooms		-	60	-	127
LGF - FM Office		60	-	-	227
LGF - FM WC		60	-	-	87
LGF - FM Facilities		60	-	-	129
LGF - Servery		-	60	-	327
LGF - Plantroom		60	-	-	234
LGF - Drying Room		-	60	-	78
LGF - Bike Storage		60	-	-	96
6F - Office Z3 - Perimeter N		60	-	-	952
6F - Office Z3 - Perimeter S		60	-	-	1065
6F - Office Z3 - Middle		60	-	-	872
6F - Office Z2 - Perimeter S		60	-	-	1014
LGF - M Lockers		-	60	-	76
GF - Office Unit 03 Block C		60	-	-	1830
GF - Block B Office Perimeter		60	-	-	1141
GF - Block B Office		60	-	-	1116
2F - Block B Office Perimeter		60	-	-	1141
6F - Office Z1 - Perimeter S		60	-	-	407
5F - Office Z1 - Perimeter S		60	-	-	520
6F - Office Z1 - Perimeter W2		60	-	-	455
6F - Office Z1 - Perimeter W1		60	-	-	573
5F - Office Z1 Perimeter W2		60	-	-	569
5F - Office Z1 Perimeter W1		60	-	-	919
4F - Office Z1 - Perimeter W1		60	-	-	920
4F - Office Z1 - Perimeter S		60	-	-	520
4F - Office Z1 - Perimeter W2		60	-	-	563
3F - Office Z1 - Perimeter W1		60	-	-	920
3F - Office Z1 Perimeter S		60	-	-	520
3F - Office Z1 Perimeter W2		60	-	-	562
2F - Office Z1 - Perimeter W1		60	-	-	921
2F - Office Z1 - Perimeter W2		60	-	-	567
2F - Office Z1 - Perimeter S		60	-	-	520
1F - Office Z1 - Perimeter W1		60	-	-	802
1F - Office Z1 - Perimeter W2		60	-	-	647
GF - Office Unit 02 Perimeter S		60	-	-	524
GF - Office Unit 02 Perimeter W		60	-	-	596
3F - Block B Office Perimeter		60	-	-	1141
4F - Block B Office		60	-	-	1141

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
1F - Office Z1 - Perimeter S		60	-	-	529
1F - Office Z1		60	-	-	1052
1F - Office Z2 - Middle		60	-	-	1369
1F - Office Z2 - Perimeter N		60	-	-	1174
2F - Office Z1		60	-	-	986
2F - Office Z2 - Perimeter N		60	-	-	1164
2F - Office Z2 - Perimeter Middle		60	-	-	1368
3F - Office Z1		60	-	-	984
3F - Office Z2 Middle		60	-	-	1369
3F - Office Z2 - Perimeter N		60	-	-	1163
4F - Office Z1		60	-	-	984
4F - Office Z2 - Middle		60	-	-	1369
4F - Office Z2 - Perimeter N		60	-	-	1161
5F - Office Z1		60	-	-	986
5F - Office Z2 - Perimeter N		60	-	-	1046
6F - Office Z1		60	-	-	571
6F - Office Z2 Middle		60	-	-	849
6F - Office Z2 - Perimeter N		60	-	-	1050
5F - Office Z2 Middle		60	-	-	1369
5F - Office Z3 Middle		60	-	-	1420
LGF - FM Lockers		-	60	-	23
GF - Office Unit 01		60	-	-	856
LGF - Meeting Room 1		60	-	-	404
LGF - Meeting Room 2		60	-	-	341
LGF - Cafe		-	60	-	80
LGF - Bike Storage		60	-	-	83
LGF - Bike Storage		60	-	-	69
LGF - Engineering workshop Store		60	-	-	385
LGF - AHU Plant		60	-	-	394
LGF - Services		60	-	-	104
GF - Entrance		-	60	-	267
GF - Breakout Space 3		-	60	-	202
LGF - Cafe		-	60	-	1118
GF - OPEN TO BELOW		-	60	-	168
1F - Block B Office Perimeter		60	-	-	1141
2F - Block B Office		60	-	-	1539
1F - Block B Office		60	-	-	1539
3F - Block B Office		60	-	-	1539
4F - Block B Office		60	-	-	1535
GF - Breakout Space 2		-	60	-	211
GF - Feature stair		-	60	-	52
GF - Core		-	60	-	47
GF - Office Unit 03		60	-	-	3178

General lighting and display lighting		Luminous efficacy [lm/W]			
Zone name		Luminaire	Lamp	Display lamp	General lighting [W]
	Standard value	60	60	22	
LGF - Server/IT		60	-	-	171
LGF - Plantroom		60	-	-	320

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?
LGF - Security	N/A	N/A
5F - Office Z3 - Perimeter N	NO (-7.2%)	NO
5F - Office Z3 - Perimeter S	NO (-43.6%)	NO
5F - Office Z2 - Perimeter S	NO (-45%)	NO
3F - Office Z2 - Perimeter S	NO (-68.2%)	NO
3F - Office Z3 - Perimeter S	NO (-65.2%)	NO
3F - Office Z3 Middle	NO (-79.8%)	NO
3F - Office Z3 - Perimeter N	NO (-14.2%)	NO
2F - Office Z3 - Perimeter S	NO (-68%)	NO
2F - Office Z3 - Middle	NO (-80.8%)	NO
2F - Office Z3 - Perimeter N	NO (-21.1%)	NO
2F - Office Z2 - Perimeter S	NO (-71.2%)	NO
1F - Office Z2 - Perimeter S	NO (-72.6%)	NO
1F - Office Z3 - Perimeter N	NO (-32.9%)	NO
1F - Office Z3 - Middle	NO (-83%)	NO
1F - Office Z3 - Perimeter S	NO (-69.2%)	NO
4F - Office Z3 - Middle	NO (-77%)	NO
4F - Office Z3 - Perimeter S	NO (-60.1%)	NO
4F - Office Z2 - Perimeter S	NO (-63.1%)	NO
4F - Office Z3 - Perimeter N	NO (-1.4%)	NO
GF - Office Unit 02	YES (+3.8%)	NO
LGF - Male Changing Room	N/A	N/A
LGF - F Lockers	N/A	N/A
LGF - Female Changing Rooms	N/A	N/A
LGF - FM Office	NO (-57.3%)	NO
LGF - FM WC	N/A	N/A
LGF - FM Facilities	N/A	N/A
LGF - Servery	N/A	N/A
6F - Office Z3 - Perimeter N	YES (+1.3%)	NO
6F - Office Z3 - Perimeter S	NO (-32%)	NO
6F - Office Z3 - Middle	NO (-46.2%)	NO
6F - Office Z2 - Perimeter S	NO (-29.9%)	NO
LGF - M Lockers	N/A	N/A
GF - Office Unit 03 Block C	NO (-72.4%)	NO
GF - Block B Office Perimeter	NO (-63.4%)	NO
GF - Block B Office	NO (-81.7%)	NO
2F - Block B Office Perimeter	NO (-57.7%)	NO
6F - Office Z1 - Perimeter S	NO (-39.5%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
5F - Office Z1 - Perimeter S	NO (-37.8%)	NO
6F - Office Z1 - Perimeter W2	NO (-67.5%)	NO
6F - Office Z1 - Perimeter W1	NO (-34.5%)	NO
5F - Office Z1 Perimeter W2	NO (-54%)	NO
5F - Office Z1 Perimeter W1	NO (-44.8%)	NO
4F - Office Z1 - Perimeter W1	NO (-64.3%)	NO
4F - Office Z1 - Perimeter S	NO (-54%)	NO
4F - Office Z1 - Perimeter W2	NO (-73.6%)	NO
3F - Office Z1 - Perimeter W1	NO (-65.1%)	NO
3F - Office Z1 Perimeter S	NO (-59.9%)	NO
3F - Office Z1 Perimeter W2	NO (-74.3%)	NO
2F - Office Z1 - Perimeter W1	NO (-63.8%)	NO
2F - Office Z1 - Perimeter W2	NO (-71.4%)	NO
2F - Office Z1 - Perimeter S	NO (-63%)	NO
1F - Office Z1 - Perimeter W1	NO (-59.7%)	NO
1F - Office Z1 - Perimeter W2	NO (-73.2%)	NO
GF - Office Unit 02 Perimeter S	NO (-67.7%)	NO
GF - Office Unit 02 Perimeter W	NO (-64.9%)	NO
3F - Block B Office Perimeter	NO (-54.7%)	NO
4F - Block B Office	NO (-50.7%)	NO
1F - Office Z1 - Perimeter S	NO (-62.7%)	NO
1F - Office Z1	NO (-85.3%)	NO
1F - Office Z2 - Middle	NO (-89.6%)	NO
1F - Office Z2 - Perimeter N	NO (-86.6%)	NO
2F - Office Z1	NO (-85.6%)	NO
2F - Office Z2 - Perimeter N	NO (-84.5%)	NO
2F - Office Z2 - Perimeter Middle	NO (-88.6%)	NO
3F - Office Z1	NO (-84.6%)	NO
3F - Office Z2 Middle	NO (-87.6%)	NO
3F - Office Z2 - Perimeter N	NO (-79.7%)	NO
4F - Office Z1	NO (-82.7%)	NO
4F - Office Z2 - Middle	NO (-84.9%)	NO
4F - Office Z2 - Perimeter N	NO (-69.7%)	NO
5F - Office Z1	NO (-72.9%)	NO
5F - Office Z2 - Perimeter N	NO (-28.4%)	NO
6F - Office Z1	NO (-63.1%)	NO
6F - Office Z2 Middle	NO (-50.4%)	NO
6F - Office Z2 - Perimeter N	NO (-19.6%)	NO
5F - Office Z2 Middle	NO (-68.4%)	NO
5F - Office Z3 Middle	NO (-66.4%)	NO
LGF - FM Lockers	N/A	N/A
GF - Office Unit 01	NO (-72.3%)	NO
LGF - Meeting Room 1	NO (-55.2%)	NO
LGF - Meeting Room 2	NO (-56.5%)	NO
LGF - Cafe	N/A	N/A
LGF - Engineering workshop Store	N/A	N/A
LGF - Cafe	NO (-95.2%)	NO
GF - OPEN TO BELOW	NO (-56.7%)	NO
1F - Block B Office Perimeter	NO (-59.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
2F - Block B Office	YES (+135.2%)	NO
1F - Block B Office	YES (+126%)	NO
3F - Block B Office	YES (+144.7%)	NO
4F - Block B Office	YES (+172.9%)	NO
GF - Office Unit 03	NO (-60.4%)	NO
LGF - Server/IT	N/A	N/A

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?	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
Area [m ²]	11346.2	11346.2
External area [m ²]	8994.7	8994.7
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	5	3
Average conductance [W/K]	6032.32	4006.43
Average U-value [W/m ² K]	0.67	0.45
Alpha value* [%]	10.98	10

* 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	13.88	4.6
Cooling	8.13	6.87
Auxiliary	41.08	9.14
Lighting	13.65	18.73
Hot water	20.61	17.76
Equipment*	46.75	46.75
TOTAL **	97.36	57.1

* 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

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	96.56	108.03
Primary energy* [kWh/m ²]	230.25	131.27
Total emissions [kg/m ²]	39.3	22.4

* 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 SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER	
[ST] Constant volume system (fixed fresh air rate), [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	44.7	74.5	14.9	10.9	54.4	0.83	1.9	0.87	2.75	
Notional	8.9	125.6	2.9	9.2	11.9	0.86	3.79	----	----	
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	48	0	17.2	0	2.7	0.78	0	0.87	0	
Notional	48.7	0	15.7	0	1.4	0.86	0	----	----	
[ST] Central heating using water: floor heating, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	13.2	0	4.4	0	2.1	0.83	0	0.87	0	
Notional	8.4	0	2.7	0	1	0.86	0	----	----	
[ST] Single room cooling system, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	0	0	0	0	0	0.75	1.42	0.87	2	
Notional	0	0	0	0	0	0.86	3.79	----	----	
[ST] No Heating or Cooling										
Actual	0	0	0	0	0	0	0	0	0	
Notional	0	0	0	0	0	0	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

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-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.3	CR000000:Surf[0]
Floor	0.2	0.22	VD000000:Surf[0]
Roof	0.15	0.25	NT000000:Surf[1]
Windows, roof windows, and rooflights	1.5	1.53	GF000008:Surf[3]
Personnel doors	1.5	-	No Personnel doors in building
Vehicle access & similar large doors	1.5	-	No Vehicle access doors in building
High usage entrance doors	1.5	-	No High usage entrance doors in building
U _{i-Typ} = Typical individual element U-values [W/(m²K)]			U _{i-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	5