

Project name

**190313_8031_Southampton Row_Existing
Base Case**

As built

Date: Wed May 15 09:45:12 2019

Administrative information

Building Details

Address: 8-10 Southampton Row, London, WC1B 4AE

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.10

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.10

BRUKL compliance check version: v5.4.b.0

Owner Details

Name:

Telephone number:

Address: , ,

Certifier details

Name:

Telephone number:

Address: , ,

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	72.1
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	72.1
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	122.9
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	1.93	3.2	GH00000A:Surf[0]
Floor	0.25	3.37	3.37	1H000001:Surf[20]
Roof	0.25	0.39	0.45	2H000006:Surf[13]
Windows***, roof windows, and rooflights	2.2	1.71	1.8	GH000008:Surf[0]
Personnel doors	2.2	2.2	2.2	G_00000B:Surf[5]
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	25

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- FCU (AHU2, VRF350, Fifth Floor NEW)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.92	2.6	0	2.2	0.73
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					YES
<p>* 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.</p> <p>^ 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.</p>					

2- Internal Stairs (Elec. radiator heating only)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.81	-	0.2	0	-
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

3- FCU (AHU3, VRF300, First+Ground Floors)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.92	2.6	0	2.2	0.73
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					YES
<p>* 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.</p> <p>^ 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.</p>					

4- FCU (AHU1, VRF400, 2nd,3rd,4th,6th,7th Floors EXISTING)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.92	2.6	0	2.2	0.73
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					YES
<p>* 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.</p> <p>^ 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.</p>					

5- EnSuite Bathrooms (Elec. radiator heating only)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.81	-	0.2	0	-
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

6- FCU (AHU1, VRF350, Fifth Floor EXISTING)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.92	2.6	0	2.2	0.73
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					YES
<p>* 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.</p> <p>^ 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.</p>					

7- Store (Extract Only)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	0	0.73
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

8- AHU4 - Basement Wall Mounted VRF (PKA-M100KA.TH)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.92	2.6	0	2.2	0.73
Standard value	0.91*	3.2	N/A	1.6^	0.65
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
<p>* 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.</p> <p>^ 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.</p>					

"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		Zone	Standard
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1			
1_Hotel_Lobby_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
1_Hotel_Restaurant 1_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
1_Hotel_Restaurant 1_I	-	-	-	-	-	-	-	0.5	-	-	-	N/A
1_Hotel_Restaurant 2_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
1_Hotel_Restaurant 3_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
1_Hotel_Restaurant 4_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
1_Hotel_Restaurant 5_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_2.01_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_2.02_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_2.03_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_2.04_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_2.05_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_2.06_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_Lobby 1_I	-	-	-	-	-	-	-	0.5	-	-	-	N/A
2_Hotel_Upper Lift Lobby_P	-	-	-	-	-	-	-	0.5	-	-	-	N/A
3_Hotel_3.01_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	-	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
3_Hotel_3.02_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
3_Hotel_3.03_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
3_Hotel_3.04_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
3_Hotel_3.05_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
3_Hotel_3.06_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
3_Hotel_Lobby 1_I	-	-	-	-	-	-	-	0.5	-	-	N/A
3_Hotel_Upper Lift Lobby_P	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_4.01_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_4.02_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_4.03_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_4.04_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_4.05_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_4.06_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_Lobby 1_I	-	-	-	-	-	-	-	0.5	-	-	N/A
4_Hotel_Upper Lift Lobby_P	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_5.01_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_5.02_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_5.03_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_5.04_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_5.05_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_5.06_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_Lobby 1_I	-	-	-	-	-	-	-	0.5	-	-	N/A
5_Hotel_Upper Lift Lobby_P	-	-	-	-	-	-	-	0.5	-	-	N/A
6_Hotel_6.02_Bedroom 1_P	-	-	-	-	-	-	-	0.5	-	-	N/A
6_Hotel_6.02_Bedroom 2_P	-	-	-	-	-	-	-	0.5	-	-	N/A
6_Hotel_6.03_Bedroom 1_P	-	-	-	-	-	-	-	0.5	-	-	N/A
6_Hotel_6.03_Bedroom 2_P	-	-	-	-	-	-	-	0.5	-	-	N/A
6_Hotel_6.03_Lobby 1_I	-	-	-	-	-	-	-	0.5	-	-	N/A
6_Hotel_Lobby 1_I	-	-	-	-	-	-	-	0.5	-	-	N/A
6_Hotel_Upper Lift Lobby_P	-	-	-	-	-	-	-	0.5	-	-	N/A
7_Hotel_7.01_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
7_Hotel_7.02_Bedroom_P	-	-	-	-	-	-	-	0.5	-	-	N/A
7_Hotel_Lobby 1_P	-	-	-	-	-	-	-	0.5	-	-	N/A
7_Hotel_Upper Lift Lobby_P	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_BOH_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_BOH_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_Lobby_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_Lobby_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_Plant Room_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_Plant_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_Stair to Basement_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_WC 1_I	-	-	-	-	-	-	-	0.5	-	-	N/A
B1_Hotel_WC 2_I	-	-	-	-	-	-	-	0.5	-	-	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard	
B1_Staff Change_I	-	-	-	-	-	-	-	0.5	-	-	N/A	
B2_Hotel_Plant Circulation_I	-	-	-	-	-	-	-	0.5	-	-	N/A	
B2_Hotel_Water Tanks North_I	-	-	-	-	-	-	-	0.5	-	-	N/A	
B2_Hotel_Water Tanks South_I	-	-	-	-	-	-	-	0.5	-	-	N/A	
G_Hotel_Bar_P	-	-	-	-	-	-	-	0.5	-	-	N/A	
G_Hotel_BOH_I	-	-	-	-	-	-	-	0.5	-	-	N/A	
G_Hotel_Entrance Lobby_P	-	-	-	-	-	-	-	0.5	-	-	N/A	
G_Hotel_Reception Desk_P	-	-	-	-	-	-	-	0.5	-	-	N/A	
G_Hotel_Reception_P	-	-	-	-	-	-	-	0.5	-	-	N/A	
G_Hotel_Staff/Service Entrance_P	-	-	-	-	-	-	-	0.3	-	-	N/A	
G_Hotel_Stair to Basement_P	-	-	-	-	-	-	-	0.5	-	-	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	
1_Hotel_Lobby_P		-	60	-	92
1_Hotel_Main Stair_I		-	60	-	61
1_Hotel_Restaurant 1_P		-	60	15	78
1_Hotel_Restaurant 1_I		-	60	15	53
1_Hotel_Restaurant 2_P		-	60	15	108
1_Hotel_Restaurant 3_P		-	60	15	119
1_Hotel_Restaurant 4_P		-	60	15	78
1_Hotel_Restaurant 5_P		-	60	15	132
2_Hotel_2.01_Bedroom_P		-	60	-	58
2_Hotel_2.02_Bedroom_P		-	60	-	56
2_Hotel_2.03_Bathroom_I		-	60	-	45
2_Hotel_2.03_Bedroom_P		-	60	-	55
2_Hotel_2.04_Bedroom_P		-	60	-	50
2_Hotel_2.05_Bedroom_P		-	60	-	56
2_Hotel_2.06_Bedroom_P		-	60	-	54
2_Hotel_2.08_Bathroom_I		-	60	-	40
2_Hotel_2.08_Bathroom_P		-	60	-	35
2_Hotel_2.08_Bathroom_P		-	60	-	47
2_Hotel_2.08_Bathroom_P		-	60	-	42
2_Hotel_2.08_Bathroom_P		-	60	-	36
2_Hotel_Lobby 1_I		-	60	-	49
2_Hotel_Main Stair_I		-	60	-	52
2_Hotel_Upper Lift Lobby_P		-	60	-	79
3_Hotel_3.01_Bathroom_I		-	60	-	41
3_Hotel_3.01_Bedroom_P		-	60	-	58
3_Hotel_3.02_Bathroom_P		-	60	-	43
3_Hotel_3.02_Bedroom_P		-	60	-	57
3_Hotel_3.03_Bathroom_I		-	60	-	46

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
3_Hotel_3.03_Bedroom_P		-	60	-	56
3_Hotel_3.04_Bathroom_P		-	60	-	48
3_Hotel_3.04_Bedroom_P		-	60	-	51
3_Hotel_3.05_Bathroom_P		-	60	-	37
3_Hotel_3.05_Bedroom_P		-	60	-	56
3_Hotel_3.06_Bathroom_P		-	60	-	35
3_Hotel_3.06_Bedroom_P		-	60	-	54
3_Hotel_Lobby 1_I		-	60	-	52
3_Hotel_Main Stair_I		-	60	-	51
3_Hotel_Upper Lift Lobby_P		-	60	-	82
4_Hotel_4.01_Bathroom_P		-	60	-	40
4_Hotel_4.01_Bedroom_P		-	60	-	53
4_Hotel_4.02_Bathroom_P		-	60	-	42
4_Hotel_4.02_Bedroom_P		-	60	-	56
4_Hotel_4.03_Bathroom_I		-	60	-	46
4_Hotel_4.03_Bedroom_P		-	60	-	55
4_Hotel_4.04_Bathroom_P		-	60	-	47
4_Hotel_4.04_Bedroom_P		-	60	-	51
4_Hotel_4.05_Bathroom_P		-	60	-	37
4_Hotel_4.05_Bedroom_P		-	60	-	56
4_Hotel_4.06_Bathroom_P		-	60	-	35
4_Hotel_4.06_Bedroom_P		-	60	-	54
4_Hotel_Lobby 1_I		-	60	-	51
4_Hotel_Main Stair_I		-	60	-	51
4_Hotel_Upper Lift Lobby_P		-	60	-	81
5_Hotel_5.01_Bathroom_P		-	60	-	40
5_Hotel_5.01_Bedroom_P		-	60	-	52
5_Hotel_5.02_Bathroom_P		-	60	-	41
5_Hotel_5.02_Bedroom_P		-	60	-	55
5_Hotel_5.03_Bathroom_I		-	60	-	45
5_Hotel_5.03_Bedroom_P		-	60	-	55
5_Hotel_5.04_Bathroom_P		-	60	-	46
5_Hotel_5.04_Bedroom_P		-	60	-	50
5_Hotel_5.05_Bathroom_P		-	60	-	36
5_Hotel_5.05_Bedroom_P		-	60	-	55
5_Hotel_5.06_Bathroom_P		-	60	-	34
5_Hotel_5.06_Bedroom_P		-	60	-	53
5_Hotel_Lobby 1_I		-	60	-	50
5_Hotel_Main Stair_I		-	60	-	50
5_Hotel_Upper Lift Lobby_P		-	60	-	80
6_Hotel_6.01_Bathroom_P		-	60	-	42
6_Hotel_6.02_Bathroom_P		-	60	-	62
6_Hotel_6.02_Bedroom 1_P		-	60	-	78

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
6_Hotel_6.02_Bedroom 2_P		-	60	-	64
6_Hotel_6.03_Bathroom_P		-	60	-	36
6_Hotel_6.03_Bedroom 1_P		-	60	-	76
6_Hotel_6.03_Bedroom 2_P		-	60	-	53
6_Hotel_6.03_Lobby 1_I		-	60	-	23
6_Hotel_Lobby 1_I		-	60	-	52
6_Hotel_Main Stair_I		-	60	-	50
6_Hotel_Upper Lift Lobby_P		-	60	-	72
7_Hotel_7.01_Bathroom_P		-	60	-	43
7_Hotel_7.01_Bedroom_P		-	60	-	96
7_Hotel_7.02_Bathroom_P		-	60	-	42
7_Hotel_7.02_Bedroom_P		-	60	-	67
7_Hotel_Lobby 1_P		-	60	-	44
7_Hotel_Main Stair_I		-	60	-	51
7_Hotel_Store_P		60	-	-	7
7_Hotel_Upper Lift Lobby_P		-	60	-	72
B1_Hotel_BOH_I		-	60	-	103
B1_Hotel_BOH_I		-	60	-	186
B1_Hotel_Lobby_I		-	60	-	95
B1_Hotel_Lobby_I		-	60	-	48
B1_Hotel_Main Stair_I		-	60	-	59
B1_Hotel_Plant Room_I		60	-	-	201
B1_Hotel_Plant_I		60	-	-	168
B1_Hotel_Stair to Basement_I		-	60	-	48
B1_Hotel_Store_I		60	-	-	18
B1_Hotel_Vaults_I		60	-	-	64
B1_Hotel_WC 1_I		-	60	-	115
B1_Hotel_WC 2_I		-	60	-	116
B1_Staff Change_I		-	60	-	129
B2_Hotel_Plant Circulation_I		-	60	-	36
B2_Hotel_Water Tanks North_I		60	-	-	181
B2_Hotel_Water Tanks South_I		60	-	-	215
G_Hotel_Bar_P		-	60	15	298
G_Hotel_BOH_I		-	60	-	103
G_Hotel_Entrance Lobby_P		-	60	-	36
G_Hotel_Main Stair_I		-	60	-	64
G_Hotel_Reception Desk_P		-	60	15	104
G_Hotel_Reception_P		-	60	15	476
G_Hotel_Staff/Service Entrance_P		-	60	-	38
G_Hotel_Stair to Basement_P		-	60	-	50

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?
1_Hotel_Lobby_P	YES (+37.1%)	NO
1_Hotel_Restaurant 1_P	NO (-27.1%)	NO
1_Hotel_Restaurant 1_I	YES (+49.3%)	NO
1_Hotel_Restaurant 2_P	NO (-43.5%)	NO
1_Hotel_Restaurant 3_P	YES (+39.7%)	NO
1_Hotel_Restaurant 4_P	NO (-7.9%)	NO
1_Hotel_Restaurant 5_P	NO (-4.7%)	NO
2_Hotel_2.01_Bedroom_P	NO (-63.3%)	NO
2_Hotel_2.02_Bedroom_P	NO (-44%)	NO
2_Hotel_2.03_Bedroom_P	NO (-20.8%)	NO
2_Hotel_2.04_Bedroom_P	YES (+0.2%)	NO
2_Hotel_2.05_Bedroom_P	NO (-54.9%)	NO
2_Hotel_2.06_Bedroom_P	NO (-78.3%)	NO
2_Hotel_Lobby 1_I	NO (-100%)	NO
2_Hotel_Upper Lift Lobby_P	NO (-48.3%)	NO
3_Hotel_3.01_Bedroom_P	NO (-65.1%)	NO
3_Hotel_3.02_Bedroom_P	NO (-47.8%)	NO
3_Hotel_3.03_Bedroom_P	NO (-20.7%)	NO
3_Hotel_3.04_Bedroom_P	YES (+0.2%)	NO
3_Hotel_3.05_Bedroom_P	NO (-55.2%)	NO
3_Hotel_3.06_Bedroom_P	NO (-79.4%)	NO
3_Hotel_Lobby 1_I	N/A	N/A
3_Hotel_Upper Lift Lobby_P	NO (-45.9%)	NO
4_Hotel_4.01_Bedroom_P	NO (-68.9%)	NO
4_Hotel_4.02_Bedroom_P	NO (-51.1%)	NO
4_Hotel_4.03_Bedroom_P	NO (-38.6%)	NO
4_Hotel_4.04_Bedroom_P	NO (-22.6%)	NO
4_Hotel_4.05_Bedroom_P	NO (-58.1%)	NO
4_Hotel_4.06_Bedroom_P	NO (-81.3%)	NO
4_Hotel_Lobby 1_I	N/A	N/A
4_Hotel_Upper Lift Lobby_P	NO (-46.1%)	NO
5_Hotel_5.01_Bedroom_P	NO (-88.7%)	NO
5_Hotel_5.02_Bedroom_P	NO (-88.1%)	NO
5_Hotel_5.03_Bedroom_P	NO (-40.3%)	NO
5_Hotel_5.04_Bedroom_P	NO (-24%)	NO
5_Hotel_5.05_Bedroom_P	NO (-89.5%)	NO
5_Hotel_5.06_Bedroom_P	NO (-93.8%)	NO
5_Hotel_Lobby 1_I	N/A	N/A
5_Hotel_Upper Lift Lobby_P	NO (-63.8%)	NO
6_Hotel_6.02_Bedroom 1_P	NO (-67.8%)	NO
6_Hotel_6.02_Bedroom 2_P	NO (-95.1%)	NO
6_Hotel_6.03_Bedroom 1_P	NO (-67.7%)	NO
6_Hotel_6.03_Bedroom 2_P	NO (-96.6%)	NO
6_Hotel_6.03_Lobby 1_I	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
6_Hotel_Lobby 1_I	NO (-79.7%)	NO
6_Hotel_Upper Lift Lobby_P	YES (+81.1%)	NO
7_Hotel_7.01_Bedroom_P	NO (-81.5%)	NO
7_Hotel_7.02_Bedroom_P	NO (-84.7%)	NO
7_Hotel_Lobby 1_P	YES (+130.8%)	NO
7_Hotel_Upper Lift Lobby_P	YES (+89.9%)	NO
B1_Hotel_BOH_I	N/A	N/A
B1_Hotel_BOH_I	N/A	N/A
B1_Hotel_Lobby_I	N/A	N/A
B1_Hotel_Lobby_I	N/A	N/A
B1_Hotel_Plant Room_I	N/A	N/A
B1_Hotel_Plant_I	N/A	N/A
B1_Hotel_Stair to Basement_I	N/A	N/A
B1_Hotel_WC 1_I	N/A	N/A
B1_Hotel_WC 2_I	N/A	N/A
B1_Staff Change_I	N/A	N/A
B2_Hotel_Plant Circulation_I	N/A	N/A
B2_Hotel_Water Tanks North_I	N/A	N/A
B2_Hotel_Water Tanks South_I	N/A	N/A
G_Hotel_Bar_P	NO (-9.8%)	NO
G_Hotel_BOH_I	N/A	N/A
G_Hotel_Entrance Lobby_P	YES (+76.7%)	NO
G_Hotel_Reception Desk_P	NO (-34.1%)	NO
G_Hotel_Reception_P	YES (+47.5%)	NO
G_Hotel_Staff/Service Entrance_P	N/A	N/A
G_Hotel_Stair to Basement_P	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]	1894.4	1894.4
External area [m ²]	2390.6	2390.6
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	25	3
Average conductance [W/K]	4666.45	1251.57
Average U-value [W/m ² K]	1.95	0.52
Alpha value* [%]	9.99	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
B1 Offices and Workshop businesses
B2 to B7 General Industrial and Special Industrial Groups
B8 Storage or Distribution
100 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	147.58	26.57
Cooling	7.33	8.93
Auxiliary	45.4	25.55
Lighting	22.9	19.88
Hot water	180.11	172.22
Equipment*	45.99	45.99
TOTAL **	403.31	253.16

* 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]	536.3	204.32
Primary energy* [kWh/m ²]	710.54	403.28
Total emissions [kg/m ²]	122.9	72.1

* 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] Fan coil systems, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	18.6	208.9	5.9	29.2	59.5	0.88	1.99	0.92	2.6	
Notional	0	0	0	0	0	0	0	----	----	
[ST] Fan coil systems, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	295.5	61.1	93.2	8.5	60.2	0.88	1.99	0.92	2.6	
Notional	0.3	343.7	0.1	25.2	28.9	0.86	3.79	----	----	
[ST] Central heating using air distribution, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
Actual	1034.5	0	269.3	0	0	1.07	0	0.81	0	
Notional	59.1	102.5	19.1	7.5	31.2	0.86	3.79	----	----	
[ST] Fan coil systems, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	242.4	146.4	76.5	20.4	69.4	0.88	1.99	0.92	2.6	
Notional	486.6	0	156.8	0	34.4	0.86	0	----	----	
[ST] Fan coil systems, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	392.9	13.3	123.9	1.9	50.7	0.88	1.99	0.92	2.6	
Notional	41.2	228.7	13.3	16.8	33.9	0.86	3.79	----	----	
[ST] Central heating using air distribution, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
Actual	210.4	0	54.8	0	0	1.07	0	0.81	0	
Notional	39.3	177.6	12.7	13	28.8	0.86	3.79	----	----	
[ST] Fan coil systems, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
Actual	727.3	17.6	229.4	2.5	43.4	0.88	1.99	0.92	2.6	
Notional	0.5	0	0.2	0	8.4	0.86	0	----	----	
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
Actual	2142.3	0	743.9	0	0.5	0.8	0	1	0	
Notional	6.7	152.6	2.1	11.2	13.1	0.86	3.79	----	----	
[ST] No Heating or Cooling										
Actual	0	0	0	0	0	0	0	0	0	
Notional	148.3	0	47.8	0	0.5	0.86	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	0.15	2H000000:Surf[0]
Floor	0.2	3.37	1H000001:Surf[20]
Roof	0.15	0.12	5H000007:Surf[1]
Windows, roof windows, and rooflights	1.5	1.3	2H000030:Surf[0]
Personnel doors	1.5	2.2	G_00000B:Surf[5]
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	25