

Project name

Welbourne**As built****Date:** Fri Jun 14 10:13:35 2024

Administrative information

Building Details

Address: Welbourne Health Centre, Unit 1, Walter Tull House, Monument Way, LONDON, N17 9QX

Certifier details

Name: Andrew Vane

Telephone number: 0208 256 1350

Address: Courtney House 62 Jarvis Road, South Croydon, CR2 6HU

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.0

Interface to calculation engine: iSBEM

Interface to calculation engine version: v6.1.e

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

Foundation area [m²]: 935

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	5.55
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	10.61
Target primary energy rate (TPER), kWh _{PE} /m ² annum	46.09
Building primary energy rate (BPER), kWh _{PE} /m ² annum	92.43
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	0.21	0.28	Room 6/6 - Wall
Floors	0.18	0.24	1.3	Room 55/2 - Int.Floor
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	-	-	No heat loss flat roofs
Windows** and roof windows	1.6	2.73	2.8	Room 6/6 - Wall/Window 1
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.4	1.4	Room 119/2 - Wall/Door 1
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_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]

U_{a-Calc} = Calculated area-weighted average 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	3.94

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 to 0.95

1- VRF-G-PURY-P300YNW

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	7	9.63	-	-	-
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.					

2- Comms Room DX Split

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.4	6.5	-	-	-
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					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

3- Radiator

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.91	-	-	-	-
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.					

4- Radiant Panel

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.91	-	-	-	-
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.					

5- VRF-F-PURY-P350YNW

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	6.99	9.67	-	-	-
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.					

6- VRF-F-PURY-P400YNW

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	5.34	9.28	-	-	-
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.					

7- PURY-G-P450YNW

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.46	5.93	-	-	-
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					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

1- HWS

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.011
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	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	2.3	2	0.5	0.5	0.4	1			
G.21-Exam/Consult 1 - 6	-	-	-	-	1	-	-	-	-		0.65	N/A
G.23- Exam/Consult 2 - 8	-	-	-	-	1	-	-	-	-		0.65	N/A
G.14Treatment Room 2 - 9	-	-	-	-	1	-	-	-	-		0.65	N/A
G.13-Treatment Room 3 - 10	-	-	-	-	1	-	-	-	-		0.65	N/A
G.10-Exam/Consult 3 - 13	-	-	-	-	0.5	-	-	-	-		0.65	N/A
G.09- Exam/Consult 4 - 14	-	-	-	-	0.5	-	-	-	-		0.65	N/A
G.08-Exam/Consult 5 - 15	-	-	-	-	1	-	-	-	-		0.65	N/A
G.07-Exam/Consult 6 - 16	-	-	-	-	1	-	-	-	-		0.65	N/A
G.06-Exam/Consult 7 - 17	-	-	-	-	1	-	-	-	-		0.65	N/A
G.04-Interview - 23	-	-	-	-	1.5	-	-	-	-		0.65	N/A
1.40 Clean Utility - 55	0.5	-	-	-	1	-	-	-	-		-	N/A
1.18 Photocopier Room - 98	0.3	-	-	-	-	-	-	-	-		-	N/A
1-SubWait - 83	-	-	-	-	0.9	-	-	-	-		0.65	N/A
1.39 Cleaners - 96	-	-	-	-	1	-	-	-	-		-	N/A
1.10 Server - 71	-	-	-	-	0.6	-	-	-	-		0.65	N/A
G.20 Staff WC - 113	0.4	-	-	-	-	-	-	-	-		-	N/A
G26-Dirty Utility - 11	0.5	-	-	-	-	-	-	-	-		-	N/A
G.25 Specimen WC - 99	0.5	-	-	-	-	-	-	-	-		-	N/A
G.12-Clean Utility - 20	0.5	-	-	-	1	-	-	-	-		-	N/A

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	2.3	2	0.5	0.5	0.4	1		
G.11-Staff WC - 21	0.5	-	-	-	-	-	-	-	-	-	N/A
G-Kitchen - 22	0.5	-	-	-	-	-	-	-	-	-	N/A
G.28-WC1 - 30	0.5	-	-	-	-	-	-	-	-	-	N/A
G.29-WC2 - 31	0.4	-	-	-	-	-	-	-	-	-	N/A
G.30-ACC WC - 34	0.5	-	-	-	-	-	-	-	-	-	N/A
C.01 Circulation - 118	-	-	-	-	0.6	-	-	-	-	0.65	N/A
G.34 Baby Change - 103	0.5	-	-	-	-	-	-	-	-	-	N/A
1.33 Dirty Utility - 47	0.5	-	-	-	-	-	-	-	-	-	N/A
1.32 Specimen WC - 48	0.5	-	-	-	-	-	-	-	-	-	N/A
1.43 Acc WC. - 57	0.5	-	-	-	-	-	-	-	-	-	N/A
1.13 Acc.Shower/Change - 72	0.6	-	-	-	-	-	-	-	-	-	N/A
1.12-Shower/Change - 75	0.6	-	-	-	-	-	-	-	-	-	N/A
1.11 -ACC WC - 76	0.6	-	-	-	-	-	-	-	-	-	N/A
C.05 Circulation 3 - 93	-	-	-	-	0.6	-	-	-	-	0.65	N/A
1.41 WC1 - 56	0.5	-	-	-	-	-	-	-	-	-	N/A
1.15 Staff WC1 - 73	0.6	-	-	-	-	-	-	-	-	-	N/A
1.14 Staff WC2 - 74	0.6	-	-	-	-	-	-	-	-	-	N/A
1.42-WC2 - 95	0.5	-	-	-	-	-	-	-	-	-	N/A
1.38 Staff WC - 85	0.5	-	-	-	-	-	-	-	-	-	N/A
G-Disposal Hold - 4	0.5	-	-	-	-	-	-	-	-	-	N/A
G22-Treatment Room1 - 7	-	-	-	-	0.9	-	-	-	-	0.65	N/A
G.32 Kitchen/Store - 106	0.4	-	-	-	-	-	-	-	-	-	N/A
G.17 Cleaners - 120	0.5	-	-	-	-	-	-	-	-	-	N/A
1.19-PM Office 1 - 44	-	-	-	-	0.9	-	-	-	-	0.65	N/A
1.23 Digital POD 3 - 61	-	-	-	-	0.9	-	-	-	-	0.65	N/A
1.22 Digital Pod 4 - 62	-	-	-	-	1.5	-	-	-	-	0.65	N/A
1.06 Meeting 2 - 67	-	-	-	-	1	-	-	-	-	0.65	N/A
1.08 Interview - 69	-	-	-	-	0.5	-	-	-	-	-	N/A
1.20 -PM Office - 77	-	-	-	-	0.9	-	-	-	-	0.65	N/A
1.21-PM Office - 78	-	-	-	-	0.9	-	-	-	-	0.65	N/A
1.16 Staff Rest - 81	-	-	-	-	1	-	-	-	-	0.65	N/A
1.17 Open Plan - 89	-	-	-	-	0.9	-	-	-	-	0.65	N/A
1.35 Treatment Room - 45	-	-	-	-	1	-	-	-	-	0.65	N/A
1.34 Treatment Room - 46	-	-	-	-	1	-	-	-	-	0.65	N/A
1.30 Exam/Consult 1 - 49	-	-	-	-	1	-	-	-	-	0.65	N/A
1.29 Exam/Consult 2 - 50	-	-	-	-	1.5	-	-	-	-	0.65	N/A
1.28 Exam/Consult 3 - 51	-	-	-	-	1.5	-	-	-	-	0.65	N/A
1.27 Exam/Consult 4 - 52	-	-	-	-	1	-	-	-	-	0.65	N/A
1.26 Exam/Consult 5 - 53	-	-	-	-	1.5	-	-	-	-	0.65	N/A
1.25 Digital Pod 1 - 59	-	-	-	-	1.5	-	-	-	-	0.65	N/A
1.24 Digital Pod 2 - 60	-	-	-	-	0.9	-	-	-	-	0.65	N/A
1.03 Meeting 1 - 66	-	-	-	-	0.5	-	-	-	-	0.65	N/A
1.01 Wait - 86	-	-	-	-	1	-	-	-	-	0.65	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	
G.02 Reception - 116	-	-	-	-	1.6	-	-	-	-	0.96	N/A	
G.05 -Wait - 18	-	-	-	-	1.6	-	-	-	-	0.65	N/A	
G.31 Group Room - 108	-	-	-	-	1	-	-	-	-	0.65	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
G-Cold Water - 1		105	-	-
Stair 1 - 110		840	-	-
G.41 Hot Water - 25		200	-	-
G.35 Electrical Intake - 101		222	-	-
Lift - 111		349	-	-
Plant Enclosure - 112		1344	-	-
Stair 1 - 58		836	-	-
1-Stair 2 & Lift - 87		1245	-	-
Riser - 88		589	-	-
G.16 Store - 100		68	-	-
G.42 Store - 104		44	-	-
Area adjacent to Store - 121		243	-	-
G.18 Cold Water - 122		83	-	-
G.21-Exam/Consult 1 - 6		230	-	-
G.23- Exam/Consult 2 - 8		225	-	-
G.14Treatment Room 2 - 9		244	-	-
G.13-Treatment Room 3 - 10		264	-	-
G.10-Exam/Consult 3 - 13		233	-	-
G.09- Exam/Consult 4 - 14		231	-	-
G.08-Exam/Consult 5 - 15		218	-	-
G.07-Exam/Consult 6 - 16		226	-	-
G.06-Exam/Consult 7 - 17		238	-	-
G.04-Interview - 23		243	-	-
1.44 Store - 54		84	-	-
1.40 Clean Utility - 55		172	-	-
1.18 Photocopier Room - 98		497	-	-
1-SubWait - 83		130	-	-
1.39 Cleaners - 96		37	-	-
1.10 Server - 71		197	-	-
G.20 Staff WC - 113		359	-	-
G26-Dirty Utility - 11		173	-	-
G.25 Specimen WC - 99		445	-	-
G-Circulation 5 - 19		286	-	-
G.12-Clean Utility - 20		194	-	-
G.11-Staff WC - 21		350	-	-
G-Kitchen - 22		167	-	-

General lighting and display lighting		General luminaire		Display light source	
Zone name		Efficacy [lm/W]		Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95		80	0.3
C.02 Circulation - 107		161		-	-
G.28-WC1 - 30		265		-	-
G.29-WC2 - 31		373		-	-
C.02 Circulation 2 - 109		75		-	-
G.30-ACC WC - 34		327		-	-
G.19 Resus Trolley Bay - 114		23		-	-
G.27 Health Hub - 117		276		-	-
C.01 Circulation - 118		184		-	-
C.03-Circulation 4 - 40		190		-	-
Stair 2 - 119		1196		-	-
G.34 Baby Change - 103		472		-	-
1.33 Dirty Utility - 47		200		-	-
1.32 Specimen WC - 48		417		-	-
1.43 Acc WC. - 57		267		-	-
1.13 Acc.Shower/Change - 72		384		-	-
1.12-Shower/Change - 75		399		-	-
1.11 -ACC WC - 76		251		-	-
1-Stair 2 - 80		916		-	-
Stair 3 - 84		882		-	-
1- WC Lobby - 90		624		-	-
C.08 Circulation 1 - 91		196		-	-
C.07 Circulation 2 - 92		191		-	-
C.05 Circulation 3 - 93		198		-	-
C.09 Circulation - 94		152		-	-
1.36 Resus Trolley Bay - 97		69		-	-
Stair 3 - 105		903		-	-
1.41 WC1 - 56		225		-	-
1.15 Staff WC1 - 73		244		-	-
1.14 Staff WC2 - 74		244		-	-
1.42-WC2 - 95		225		-	-
1.38 Staff WC - 85		245		-	-
G-Disposal Hold - 4		153		-	-
G22-Treatment Room1 - 7		220		-	-
G.32 Kitchen/Store - 106		228		-	-
G.36 Digital Work Space - 29		132		-	-
G.17 Cleaners - 120		656		-	-
1.19-PM Office 1 - 44		142		-	-
1.23 Digital POD 3 - 61		124		-	-
1.22 Digital Pod 4 - 62		125		-	-
1.05 -Digital Pod - 64		101		-	-
1.06 Meeting 2 - 67		191		-	-
1.07 Break Out - 68		96		-	-
1.08 Interview - 69		239		-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m ²]
	Standard value	95	80	0.3
1.09 Quite WorkSpace - 70		119	-	-
1.20 -PM Office - 77		143	-	-
1.21-PM Office - 78		148	-	-
1.16 Staff Rest - 81		162	-	-
1.17 Open Plan - 89		103	-	-
G.37 Digital Work Space - 102		131	-	-
1.35 Treatment Room - 45		221	-	-
1.34 Treatment Room - 46		224	-	-
1.30 Exam/Consult 1 - 49		221	-	-
1.29 Exam/Consult 2 - 50		217	-	-
1.28 Exam/Consult 3 - 51		217	-	-
1.27 Exam/Consult 4 - 52		217	-	-
1.26 Exam/Consult 5 - 53		217	-	-
1.25 Digital Pod 1 - 59		126	-	-
1.24 Digital Pod 2 - 60		123	-	-
1.04 Digital Pod - 63		92	-	-
1-Reception - 65		114	50	2.7
1.03 Meeting 1 - 66		176	-	-
1.01 Wait - 86		39	-	-
G.01 Lobby - 115		258	-	-
G.02 Reception - 116		166	-	-
G.05 -Wait - 18		83	-	-
G.31 Group Room - 108		181	-	-

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?
G.21-Exam/Consult 1 - 6	NO (-25%)	NO
G.23- Exam/Consult 2 - 8	NO (-15.6%)	NO
G.14Treatment Room 2 - 9	YES (+19.2%)	NO
G.13-Treatment Room 3 - 10	YES (+61.5%)	NO
G.10-Exam/Consult 3 - 13	YES (+6%)	NO
G.09- Exam/Consult 4 - 14	YES (+7.8%)	NO
G.08-Exam/Consult 5 - 15	YES (+10%)	NO
G.07-Exam/Consult 6 - 16	YES (+15.5%)	NO
G.06-Exam/Consult 7 - 17	YES (+1.6%)	NO
G.04-Interview - 23	N/A	N/A
1.44 Store - 54	N/A	N/A
1.40 Clean Utility - 55	N/A	N/A
1.18 Photocopier Room - 98	N/A	N/A
1-SubWait - 83	NO (-78.8%)	NO
1.39 Cleaners - 96	N/A	N/A
1.10 Server - 71	NO (-53.8%)	NO
G-Disposal Hold - 4	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
G22-Treatment Room1 - 7	NO (-19.7%)	NO
G.32 Kitchen/Store - 106	NO (-32.6%)	NO
G.36 Digital Work Space - 29	N/A	N/A
G.17 Cleaners - 120	NO (-1.1%)	NO
1.19-PM Office 1 - 44	NO (-52.4%)	NO
1.23 Digital POD 3 - 61	NO (-68.2%)	NO
1.22 Digital Pod 4 - 62	NO (-51.7%)	NO
1.05 -Digital Pod - 64	N/A	N/A
1.06 Meeting 2 - 67	NO (-51.3%)	NO
1.07 Break Out - 68	NO (-18.2%)	NO
1.08 Interview - 69	NO (-25.9%)	NO
1.09 Quite WorkSpace - 70	NO (-31.1%)	NO
1.20 -PM Office - 77	NO (-52.1%)	NO
1.21-PM Office - 78	NO (-54.8%)	NO
1.16 Staff Rest - 81	NO (-33.6%)	NO
1.17 Open Plan - 89	NO (-50.6%)	NO
G.37 Digital Work Space - 102	N/A	N/A
1.35 Treatment Room - 45	NO (-75.7%)	NO
1.34 Treatment Room - 46	NO (-36.3%)	NO
1.30 Exam/Consult 1 - 49	NO (-51.4%)	NO
1.29 Exam/Consult 2 - 50	NO (-48.6%)	NO
1.28 Exam/Consult 3 - 51	NO (-53.8%)	NO
1.27 Exam/Consult 4 - 52	NO (-54.4%)	NO
1.26 Exam/Consult 5 - 53	NO (-52.2%)	NO
1.25 Digital Pod 1 - 59	NO (-51.6%)	NO
1.24 Digital Pod 2 - 60	NO (-41.7%)	NO
1.04 Digital Pod - 63	N/A	N/A
1-Reception - 65	NO (-48.8%)	NO
1.03 Meeting 1 - 66	NO (-18.3%)	NO
1.01 Wait - 86	YES (+11.9%)	NO
G.01 Lobby - 115	N/A	N/A
G.02 Reception - 116	N/A	N/A
G.05 -Wait - 18	YES (+41.7%)	NO
G.31 Group Room - 108	YES (+33.9%)	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]	1590.6	1590.6
External area [m ²]	4153.5	4153.5
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	4	3
Average conductance [W/K]	1696.99	1208.01
Average U-value [W/m ² K]	0.41	0.29
Alpha value* [%]	11.84	12.97

* 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
 Non-residential Institutions: Education

100 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	24.55	15.76
Cooling	1.76	3.75
Auxiliary	4.82	2.6
Lighting	19.57	18.41
Hot water	15.79	1.52
Equipment*	33.44	33.44
TOTAL **	66.49	42.05

* 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	8.19
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>0</i>	<i>8.19</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	280.55	219.15
Primary energy [kWh _{PE} /m ²]	92.43	46.09
Total emissions [kg/m ²]	10.61	5.55

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	104.7	542.3	0	0	0	0	0	0	0
	Notional	71.2	509.6	0	0	0	0	----	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	183.5	77.8	7.4	3	3.7	6.87	7.2	7	9.63
	Notional	49.7	119.2	5.2	7.5	2.5	2.64	4.4	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	211	37.6	14.3	2.3	2.8	4.1	4.62	4.4	6.5
	Notional	48.2	23.2	5.1	1.5	4	2.64	4.4	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	169.9	45.6	58.1	0	5	0.81	0	0.91	0
	Notional	105	61.1	33.9	0	3.6	0.86	0	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	169.9	6.3	58.1	0	13.7	0.81	0	0.91	0
	Notional	131.2	33.2	42.4	0	9.4	0.86	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	176.2	65.5	7.1	2.5	3.7	6.86	7.23	6.99	9.67
	Notional	82.8	97	8.7	6.1	2.5	2.64	4.4	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	183.4	70.9	9.7	2.8	3.5	5.24	6.94	5.34	9.28
	Notional	72.4	129.4	7.6	8.2	2	2.64	4.4	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	144.4	89.5	12.4	5.9	5.3	3.22	4.21	3.46	5.93
	Notional	78.1	89.1	8.2	5.6	2.6	2.64	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