

Project name

TEACHING BLOCK

As built

Date: Tue Jun 11 14:48:17 2019

Administrative information

Building Details

Address: Parliament Hill School, Highgate Road, LONDON, NW5 1RL

Owner Details

Name: Parliament Hill School

Telephone number: 020 74 857 077

Address: Highgate Road, London, NW5 1RL

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.4.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.10

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

Certifier details

Name: Barry McCaffrey - FMC Services Ltd

Telephone number: 07776203499

Address: 6 Moylagh Meadows, Beragh, Omagh, BT79 0UG

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

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	20.7
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	20.7
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	12.9
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	0.11	0.13	LG000022_W2
Floor	0.25	0.11	0.12	LG000022_F
Roof	0.25	0.11	0.11	G_00001C_C
Windows***, roof windows, and rooflights	2.2	1.19	1.2	LG000022_W2_O0
Personnel doors	2.2	1.8	1.8	R0000002_W0_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 -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	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	YES
Whole building electric power factor achieved by power factor correction	>0.95

1- Radiator Heating - Natural Ventilation

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	-	-	-
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					YES
* 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- Changing AHU

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	-	-	-
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					YES
* 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.					

3- Sports Hall AHU

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.96	-	-	1.5	0.67
Standard value	0.91*	N/A	N/A	1.5^	0.5
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* 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.					

4- Classroom AC

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.17	3.26	-	-	-
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.					

5- Server Room AC

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.01	3.14	-	-	-
Standard value	0.91*	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 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.					

6- IT Classrooms AC

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.77	3.72	-	-	-
Standard value	0.91*	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 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.					

1- SYST0000-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	0
Standard value	N/A	N/A

1- CCHP Generator

	CHPQA quality index	CHP electrical efficiency
This building	-	0.38
Standard value	Not provided	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	Zone	Standard
	Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1		
lg morant stair		-	-	-	-	-	-	-	-	-	-	N/A
lg west stair		-	-	-	-	-	-	-	-	-	-	N/A
r001 entrance		-	-	-	-	-	-	-	-	-	-	N/A
r002 student services		-	-	-	-	-	-	-	-	-	-	N/A
r003 pe dance food		-	-	-	-	-	-	-	-	-	-	N/A
r008 pe store		-	-	-	-	-	-	-	-	-	-	N/A
r009 com st		-	-	-	-	-	-	-	-	-	-	N/A
r011 cl st		-	-	-	-	-	-	-	-	-	-	N/A
r012 pupil chng lobby		-	-	-	-	-	-	-	-	-	-	N/A
r014 circulation		-	-	-	-	-	-	-	-	-	-	N/A
r019 pupil chng lobby		-	-	-	-	-	-	-	-	-	-	N/A
r020 re		-	-	-	-	-	-	-	-	-	-	N/A
r021 re		-	-	-	-	-	-	-	-	-	-	N/A
r022 history		-	-	-	-	-	-	-	-	-	-	N/A
r023 history		-	-	-	-	-	-	-	-	-	-	N/A
r024 history		-	-	-	-	-	-	-	-	-	-	N/A
r025 history		-	-	-	-	-	-	-	-	-	-	N/A
r027 team (humanities)		-	-	-	-	-	-	-	-	-	-	N/A
r028 geography		-	-	-	-	-	-	-	-	-	-	N/A
r029 geography		-	-	-	-	-	-	-	-	-	-	N/A
r030 geography		-	-	-	-	-	-	-	-	-	-	N/A
r031 citizenship		-	-	-	-	-	-	-	-	-	-	N/A
r032 citizenship		-	-	-	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
r035 circulation	-	-	-	-	-	-	-	-	-	-	N/A
r105 circulation	-	-	-	-	-	-	-	-	-	-	N/A
r110 design eng	-	-	-	-	-	-	-	-	-	-	N/A
r114 healthcare / early years	-	-	-	-	-	-	-	-	-	-	N/A
r116 store	-	-	-	-	-	-	-	-	-	-	N/A
r117 maths seminar	-	-	-	-	-	-	-	-	-	-	N/A
r118 maths seminar	-	-	-	-	-	-	-	-	-	-	N/A
r119 store	-	-	-	-	-	-	-	-	-	-	N/A
r120 maths	-	-	-	-	-	-	-	-	-	-	N/A
r121 maths	-	-	-	-	-	-	-	-	-	-	N/A
r122 west stair	-	-	-	-	-	-	-	-	-	-	N/A
r123 circulation	-	-	-	-	-	-	-	-	-	-	N/A
r124 team maths / csci	-	-	-	-	-	-	-	-	-	-	N/A
r125 maths	-	-	-	-	-	-	-	-	-	-	N/A
r126 maths	-	-	-	-	-	-	-	-	-	-	N/A
r127 maths	-	-	-	-	-	-	-	-	-	-	N/A
r128 maths	-	-	-	-	-	-	-	-	-	-	N/A
r129 store	-	-	-	-	-	-	-	-	-	-	N/A
r130 ash & dh	-	-	-	-	-	-	-	-	-	-	N/A
r131 atl 9 & 10	-	-	-	-	-	-	-	-	-	-	N/A
r136 stairwell	-	-	-	-	-	-	-	-	-	-	N/A
f morrant	-	-	-	-	-	-	-	-	-	-	N/A
r201 stairwell	-	-	-	-	-	-	-	-	-	-	N/A
r203 circulation	-	-	-	-	-	-	-	-	-	-	N/A
r204 wellbeing team	-	-	-	-	-	-	-	-	-	-	N/A
r205 sendco	-	-	-	-	-	-	-	-	-	-	N/A
r206 sen rb	-	-	-	-	-	-	-	-	-	-	N/A
r207 circulation	-	-	-	-	-	-	-	-	-	-	N/A
r208 sen study	-	-	-	-	-	-	-	-	-	-	N/A
r209 study room	-	-	-	-	-	-	-	-	-	-	N/A
r210 study room	-	-	-	-	-	-	-	-	-	-	N/A
r211 study room	-	-	-	-	-	-	-	-	-	-	N/A
r215 store	-	-	-	-	-	-	-	-	-	-	N/A
r217 chem st	-	-	-	-	-	-	-	-	-	-	N/A
r219 science studio 1	-	-	-	-	-	-	-	-	-	-	N/A
r220 circulation	-	-	-	-	-	-	-	-	-	-	N/A
r223 science studio 2	-	-	-	-	-	-	-	-	-	-	N/A
r225 west stair	-	-	-	-	-	-	-	-	-	-	N/A
r226 team (science)	-	-	-	-	-	-	-	-	-	-	N/A
r004 acc wc	-	0.6	-	-	-	-	-	-	-	-	N/A
r006 student reception	-	0.6	-	-	-	-	-	-	-	-	N/A
r010 wc	-	0.6	-	-	-	-	-	-	-	-	N/A
r012 pupil chng	-	-	-	1.6	-	-	-	-	-	0.9	0.65

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		
r013 acc wc chng	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r015 acc wc chng	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r018 wc	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r019 pupil chng	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r106 wc suite	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r107 wc suite	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r108 acc wc	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r213 care (hygiene)	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r214 therapy / mi	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r216 wc suite	-	0.6	-	-	-	-	-	-	-	-	-	N/A
r007 sports hall	-	-	-	-	-	-	-	-	-	-	-	N/A
r103 food technology	-	-	-	1.6	-	-	-	-	-	-	0.65	0.65
r104 food prep	-	-	-	1.6	-	-	-	-	-	-	0.9	0.65
r109 rm prep	-	-	-	1.6	-	-	-	-	-	-	0.65	0.65
r218 prep room	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r221 lab 1	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r222 lab 2	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r224 sp lab 1	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r227 sp lab 2	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r228 lab 3	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r229 lab 4	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r230 sp lab 3	-	-	-	1.8	-	-	-	-	-	-	0.9	0.65
r111 server room	-	-	-	-	-	-	-	-	-	-	-	N/A
r112 comp sc	-	-	-	-	-	-	-	-	-	-	-	N/A
r113 comp sc	-	-	-	-	-	-	-	-	-	-	-	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		
lg morant stair	-	116	-	365	
lg west stair	-	116	-	271	
r001 entrance	-	197	-	319	
r002 student services	122	-	-	118	
r003 pe dance food	122	-	-	116	
r008 pe store	140	-	-	308	
r009 com st	140	-	-	77	
r011 cl st	98	-	-	72	
r012 pupil chng lobby	-	99	-	111	
r014 circulation	-	131	-	1527	
r019 pupil chng lobby	-	99	-	96	
r020 re	122	-	-	394	
r021 re	122	-	-	389	
r022 history	122	-	-	394	

General lighting and display lighting		Luminous efficacy [lm/W]			
Zone name		Luminaire	Lamp	Display lamp	General lighting [W]
	Standard value	60	60	22	
r023 history		122	-	-	389
r024 history		122	-	-	394
r025 history		122	-	-	389
r027 team (humanities)		121	-	-	266
r028 geography		122	-	-	391
r029 geography		122	-	-	390
r030 geography		122	-	-	388
r031 citizenship		122	-	-	393
r032 citizenship		122	-	-	390
r035 circulation		-	131	-	795
r105 circulation		-	115	-	917
r110 design eng		122	-	-	689
r114 healthcare / early years		121	-	-	309
r116 store		106	-	-	108
r117 maths seminar		121	-	-	313
r118 maths seminar		121	-	-	309
r119 store		106	-	-	121
r120 maths		122	-	-	394
r121 maths		122	-	-	389
r122 west stair		-	116	-	244
r123 circulation		-	131	-	1020
r124 team maths / csci		121	-	-	266
r125 maths		122	-	-	391
r126 maths		122	-	-	351
r127 maths		122	-	-	388
r128 maths		122	-	-	393
r129 store		106	-	-	102
r130 ash & dh		121	-	-	168
r131 atl 9 & 10		115	-	-	128
r136 stairwell		-	116	-	478
f morrant		116	-	-	554
r201 stairwell		-	116	-	475
r203 circulation		-	98	-	2824
r204 wellbeing team		121	-	-	170
r205 sendco		121	-	-	119
r206 sen rb		121	-	-	149
r207 circulation		-	111	-	377
r208 sen study		121	-	-	150
r209 study room		121	-	-	108
r210 study room		121	-	-	110
r211 study room		121	-	-	180
r215 store		106	-	-	92
r217 chem st		121	-	-	84

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
		60	60	22	
r219 science studio 1		122	-	-	481
r220 circulation		-	131	-	834
r223 science studio 2		121	-	-	488
r225 west stair		-	116	-	277
r226 team (science)		121	-	-	271
r004 acc wc		-	99	-	99
r006 student reception		121	-	-	152
r010 wc		-	99	-	234
r012 pupil chng		-	94	-	424
r013 acc wc chng		-	109	-	116
r015 acc wc chng		-	94	-	118
r018 wc		-	99	-	283
r019 pupil chng		-	94	-	401
r106 wc suite		-	99	-	312
r107 wc suite		-	99	-	312
r108 acc wc		-	94	-	88
r213 care (hygiene)		-	111	-	166
r214 therapy / mi		121	-	-	145
r216 wc suite		-	99	-	318
r007 sports hall		-	111	-	4462
r103 food technology		-	94	-	1002
r104 food prep		-	94	-	149
r109 rm prep		117	-	-	283
r218 prep room		115	-	-	1018
r221 lab 1		121	-	-	920
r222 lab 2		121	-	-	920
r224 sp lab 1		121	-	-	994
r227 sp lab 2		121	-	-	989
r228 lab 3		121	-	-	920
r229 lab 4		121	-	-	920
r230 sp lab 3		122	-	-	992
r111 server room		122	-	-	136
r112 comp sc		122	-	-	459
r113 comp sc		122	-	-	413

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?
r002 student services	NO (-67.5%)	YES
r003 pe dance food	NO (-55.5%)	YES
r020 re	NO (-21.8%)	YES
r021 re	NO (-19.3%)	YES
r022 history	NO (-20.5%)	YES
r023 history	NO (-19.3%)	YES

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
r024 history	NO (-20.5%)	YES
r025 history	NO (-17.4%)	YES
r027 team (humanities)	NO (-73.9%)	YES
r028 geography	NO (-42.3%)	YES
r029 geography	NO (-43.8%)	YES
r030 geography	NO (-43.1%)	YES
r031 citizenship	NO (-44.1%)	YES
r032 citizenship	NO (-43.6%)	YES
r110 design eng	NO (-61.6%)	YES
r114 healthcare / early years	NO (-19.3%)	YES
r117 maths seminar	NO (-20.5%)	YES
r118 maths seminar	NO (-19.3%)	YES
r120 maths	NO (-20.5%)	YES
r121 maths	NO (-17.4%)	YES
r124 team maths / csci	NO (-73.9%)	YES
r125 maths	NO (-42.3%)	YES
r126 maths	NO (-43.8%)	YES
r127 maths	NO (-43.1%)	YES
r128 maths	NO (-44.1%)	YES
r130 ash & dh	NO (-42.1%)	YES
r131 atl 9 & 10	NO (-45%)	YES
f marrant	N/A	N/A
r204 wellbeing team	NO (-81.2%)	YES
r205 sendco	NO (-62.3%)	YES
r206 sen rb	NO (-78.3%)	YES
r208 sen study	NO (-79%)	YES
r209 study room	NO (-89%)	YES
r210 study room	NO (-79.7%)	YES
r211 study room	NO (-83.2%)	YES
r219 science studio 1	NO (-52.3%)	YES
r223 science studio 2	NO (-18.2%)	YES
r226 team (science)	NO (-75.6%)	YES
r006 student reception	N/A	N/A
r214 therapy / mi	N/A	N/A
r007 sports hall	NO (-80.3%)	NO
r103 food technology	NO (-71.8%)	YES
r104 food prep	N/A	N/A
r109 rm prep	N/A	N/A
r218 prep room	NO (-86.8%)	YES
r221 lab 1	NO (-20.1%)	YES
r222 lab 2	NO (-19.2%)	YES
r224 sp lab 1	NO (-20.3%)	YES
r227 sp lab 2	NO (-44%)	YES
r228 lab 3	NO (-43.4%)	YES
r229 lab 4	NO (-43.8%)	YES
r230 sp lab 3	NO (-64.4%)	YES
r111 server room	N/A	N/A
r112 comp sc	NO (-22.5%)	YES
r113 comp sc	NO (-49.1%)	YES

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 [m ²]	5144.5	5144.5
External area [m ²]	7314.8	7314.8
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	3	4
Average conductance [W/K]	1664.64	2850.13
Average U-value [W/m ² K]	0.23	0.39
Alpha value* [%]	30.97	15.79

* 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
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
100 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	7.09	11.37
Cooling	1.31	2.03
Auxiliary	5.13	2.59
Lighting	14.79	15.01
Hot water	41.05	38.25
Equipment*	19.09	19.09
TOTAL**	58.46	69.26

* 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	5	0
Wind turbines	0	0
CHP generators	10.9	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	91.3	123.16
Primary energy* [kWh/m ²]	88.91	119.46
Total emissions [kg/m ²]	12.9	20.7

* 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] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
Actual	22	63.8	7.1	0	1.2	0.86	0	0.96	0
Notional	40.2	76.9	13.7	0	0.9	0.82	0	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
Actual	11	75.3	3.5	0	5.7	0.86	0	0.96	0
Notional	9.4	76.2	3.2	0	5	0.82	0	----	----
[ST] Central heating using air distribution, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
Actual	4	48.5	1.1	0	16.9	1.02	0	0.96	0
Notional	60.4	88.2	19.5	0	8.7	0.82	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
Actual	5.1	59.3	0.3	3.4	10.8	4.09	4.89	4.17	6.55
Notional	6.2	105.9	1.1	8.2	3.6	1.53	3.6	----	----
[ST] Split or multi-split system, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
Actual	0	1603.8	0	139.9	0	0	3.18	0	6.47
Notional	0	1356.8	0	104.7	0	0	3.6	----	----
[ST] Split or multi-split system, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
Actual	22.9	154.3	7.1	13.5	0	0.9	3.18	3.77	6.35
Notional	32	155.4	10.9	12	0	0.82	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-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	-	LG000022_W7_A0
Floor	0.2	-	R1000000_F_A0
Roof	0.15	0.11	G_00001C_C
Windows, roof windows, and rooflights	1.5	0.7	R0000002_C_O0
Personnel doors	1.5	1.8	R0000002_W0_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-Typ} = Typical individual element U-values [W/(m ² K)]		U _{i-Min} = Minimum individual element U-values [W/(m ² K)]	
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m ³ /(h.m ²) at 50 Pa	5	2.5