

Project name

Winners Chapel

As designed

Date: Thu Oct 24 14:37:11 2024

Administrative information

Building Details

Address: Address 1, City, Postcode

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.26

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.26

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

Foundation area [m²]: 3278.28The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	5.51
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	4.88
Target primary energy rate (TPER), kWh _{PE} /m ² annum	58.43
Building primary energy rate (BPER), kWh _{PE} /m ² annum	50.42
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	0.13	0.13	RM00002F:Surf[6]
Floors	0.18	0.1	0.1	RM00002F:Surf[18]
Pitched roofs	0.16	0.15	0.15	RM000011:Surf[12]
Flat roofs	0.18	0.15	0.15	RM000011:Surf[8]
Windows** and roof windows	1.6	1.4	1.4	RM00002F:Surf[0]
Rooflights***	2.2	1.5	1.5	RM000011:Surf[13]
Personnel doors^	1.6	1.6	1.6	RM00002E:Surf[0]
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	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)] * 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/m ² K 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

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	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Radiator - NV

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.8	-	0.11	-	-
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

2- Radiator - Balanced MVHR

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.8	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

3- Radiator - Extract only

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.8	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

4- VAV - AHU 1 - radiator perimeter heating

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.19	5.5	0	2.12	0.75
Standard value	2.5*	4.5**	N/A	2^	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.					
** Standard shown is for air-cooled chillers >=400 kW. For chillers <400 kW, limiting SEER is 4.					
^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.					

5- VRF - MVHR

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.64	6.47	0	-	0.8
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- VAV - AHU 2 - radiator perimeter heating

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.19	5.5	0	1.83	0.75
Standard value	2.5*	4.5**	N/A	2^	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.					
** Standard shown is for air-cooled chillers >=400 kW. For chillers <400 kW, limiting SEER is 4.					
^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.					

1- Local DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.043
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			
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard	
L00 - Acc WC 01	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Acc WC 02	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Acc WC 03	0.3	-	-	-	-	-	-	-	-	-	N/A	
L00 - Chapel Circulation 02	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Chapel Lobby	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Childrens Church Entrance	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Choir Robes	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Circulation 03	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Consulting Room 01	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Counselling Room 01	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Counselling Room 02	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Counselling Room 03	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Counselling Room 04	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Ens	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Facility Management Room	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Female WCs	-	-	-	2.1	-	-	-	-	-	-	N/A	
L00 - Hall Foyer	-	-	-	2.1	-	-	-	-	-	-	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
L00 - Hospitality Rm	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Kitchen	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Kitchen BOH	-	-	-	2.1	-	-	-	-	0.5	-	N/A
L00 - Lobby Play Area	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Male WCs	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Medical Reception Room	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Ordinance Room	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Pastorate	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Restaurant	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - Sensory Room 01	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - WC 01	0.3	-	-	-	-	-	-	-	-	-	N/A
L00 - WC 02	0.3	-	-	-	-	-	-	-	-	-	N/A
L00 - WC 03	0.3	-	-	-	-	-	-	-	-	-	N/A
L00 - WCs	-	-	-	2.1	-	-	-	-	-	-	N/A
L00 - WSF Secretariat	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Acc WC	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Baptismal Room	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Changing Room 01	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Changing Room 02	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Ens	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Female WC	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Kitchen 01	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - Kitchen 02	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - Lounge Lobby	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - Male WC	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Media Editing	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Nursing Room	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Sensory Room 02	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - Storage 03	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - Store 02	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - Technical Room	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - WC 03	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - WC 04	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - WCs 01	-	-	-	2.1	-	-	-	-	-	-	N/A
L01 - WCs 02	0.3	-	-	-	-	-	-	-	-	-	N/A
L01 - WCs 05	0.3	-	-	-	-	-	-	-	-	-	N/A

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
L00 - 3-4 Yr Classroom 01		67	-	-
L00 - 3-4 Yr Classroom 02		67	-	-
L00 - 3-4 Yr Classroom 03		67	-	-

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
L00 - 5-7 Yr Classroom 01		67	-	-
L00 - 5-7 Yr Classroom 02		67	-	-
L00 - 5-7 Yr Classroom 03		67	-	-
L00 - Acc WC 01		175	-	-
L00 - Acc WC 02		146	-	-
L00 - Acc WC 03		172	-	-
L00 - Bookshop		68	-	-
L00 - Chapel		62	-	-
L00 - Chapel Circulation 01		139	-	-
L00 - Chapel Circulation 02		142	-	-
L00 - Chapel Lobby		101	-	-
L00 - Childrens Church Entrance		77	-	-
L00 - Choir Robes		84	-	-
L00 - Circulation 01		136	-	-
L00 - Circulation 02		112	-	-
L00 - Circulation 03		119	-	-
L00 - Circulation 03		147	-	-
L00 - Circulation 04		93	-	-
L00 - Circulation 05		98	-	-
L00 - Circulation 06		93	-	-
L00 - Consulting Room 01		89	-	-
L00 - Counselling Room 01		111	-	-
L00 - Counselling Room 02		111	-	-
L00 - Counselling Room 03		111	-	-
L00 - Counselling Room 04		111	-	-
L00 - CSR Office		75	-	-
L00 - Ens		134	-	-
L00 - Facility Management Room		85	-	-
L00 - Female WCs		70	-	-
L00 - Foyer		61	-	-
L00 - Gym		68	-	-
L00 - Hall Foyer		77	-	-
L00 - Hospitality Rm		68	-	-
L00 - Indoor Play Area		74	-	-
L00 - Kitchen		105	-	-
L00 - Kitchen BOH		67	-	-
L00 - Lobby		78	-	-
L00 - Lobby Play Area		145	-	-
L00 - LV Switch		108	-	-
L00 - Male WCs		71	-	-
L00 - Medical Reception Room		97	-	-
L00 - Multipurpose Hall		60	-	-
L00 - Ordinance Room		90	-	-

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
L00 - Pastorate		83	-	-
L00 - Plant		71	-	-
L00 - Restaurant		62	-	-
L00 - Sanctuary Keepers Room		147	-	-
L00 - Sensory Room 01		85	-	-
L00 - Stairs 01		125	-	-
L00 - Stairs 02		81	-	-
L00 - Stairs 03		86	-	-
L00 - Storage		70	-	-
L00 - Substation		93	-	-
L00 - Toddler Classroom 01		67	-	-
L00 - Toddler Classroom 02		67	-	-
L00 - Toddler Classroom 03		67	-	-
L00 - WC 01		181	-	-
L00 - WC 02		181	-	-
L00 - WC 03		181	-	-
L00 - WCs		98	-	-
L00 - WSF Secretariat		89	-	-
L00 - WSF Secretariat Store		86	-	-
L01 - 8-10 Classroom 01		65	-	-
L01 - 8-10 Classroom 02		64	-	-
L01 - 8-10 Classroom 03		64	-	-
L01 - 11-12 Classroom 01		64	-	-
L01 - 11-12 Classroom 02		64	-	-
L01 - 11-12 Classroom 03		64	-	-
L01 - Acc WC		136	-	-
L01 - ARP Office		74	-	-
L01 - Asist Youth Pastor's Office		83	-	-
L01 - Auditorium Lobby 01		106	-	-
L01 - Auditorium Lobby 02		106	-	-
L01 - Auditorium Lobby 03		101	-	-
L01 - Baptismal Room		69	-	-
L01 - Board Room		68	-	-
L01 - Breakout		70	80	1.688
L01 - Changing Room 01		111	-	-
L01 - Changing Room 02		110	-	-
L01 - Church Office Circulation		90	-	-
L01 - Circulation 01		89	-	-
L01 - Circulation 02		88	-	-
L01 - Circulation 03		74	-	-
L01 - Circulation 04		88	-	-
L01 - Circulation 05		83	-	-
L01 - Counting Room		76	-	-

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
L01 - Ens		113	-	-
L01 - Female WC		74	-	-
L01 - Finance Office		78	-	-
L01 - Foyer		66	-	-
L01 - Junior Teens Church		60	-	-
L01 - Kitchen 01		84	-	-
L01 - Kitchen 02		113	-	-
L01 - Lobby		120	-	-
L01 - Lounge		69	80	1.688
L01 - Lounge Lobby		149	-	-
L01 - Male WC		72	-	-
L01 - Media Editing		71	-	-
L01 - Meeting Room		69	-	-
L01 - Nursing Room		73	80	1.688
L01 - Office 01		79	-	-
L01 - Office 02		85	-	-
L01 - Office 03		83	-	-
L01 - Office 04		82	-	-
L01 - Office 05		86	-	-
L01 - Pastors Circulation		94	-	-
L01 - Pastor's Office		72	-	-
L01 - Senior Teens Church		60	-	-
L01 - Sensory Room 02		77	-	-
L01 - Server Room		81	-	-
L01 - Stairs 01		101	-	-
L01 - Stairs 02		75	-	-
L01 - Stairs 03		78	-	-
L01 - Statutory Bodies		94	-	-
L01 - Statutory Body 01		78	-	-
L01 - Statutory Body 02		73	-	-
L01 - Statutory Body 03		74	-	-
L01 - Storage 03		149	-	-
L01 - Storage 04		73	-	-
L01 - Store 01		89	-	-
L01 - Store 02		148	-	-
L01 - Tech Storage		74	-	-
L01 - Technical Room		71	-	-
L01 - Teens Church Foyer		69	-	-
L01 - Waiting Space		75	80	1.688
L01 - WC 03		158	-	-
L01 - WC 04		142	-	-
L01 - WCs 01		86	-	-
L01 - WCs 02		95	-	-

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
L01 - WCs 05		115	-	-
L01 - Youth Pastor's Office		82	-	-

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?
L00 - 3-4 Yr Classroom 01	NO (-12.9%)	NO
L00 - 3-4 Yr Classroom 02	NO (-52.7%)	NO
L00 - 3-4 Yr Classroom 03	NO (-56.6%)	NO
L00 - 5-7 Yr Classroom 01	NO (-62.1%)	NO
L00 - 5-7 Yr Classroom 02	NO (-10.7%)	NO
L00 - 5-7 Yr Classroom 03	NO (-11.8%)	NO
L00 - Bookshop	NO (-72.3%)	NO
L00 - Chapel	NO (-39.3%)	NO
L00 - Consulting Room 01	N/A	N/A
L00 - Counselling Room 01	N/A	N/A
L00 - Counselling Room 02	N/A	N/A
L00 - Counselling Room 03	N/A	N/A
L00 - Counselling Room 04	N/A	N/A
L00 - CSR Office	YES (+4.6%)	NO
L00 - Facility Management Room	N/A	N/A
L00 - Gym	NO (-58.4%)	NO
L00 - Hospitality Rm	N/A	N/A
L00 - Indoor Play Area	NO (-78.9%)	NO
L00 - Kitchen BOH	N/A	N/A
L00 - Medical Reception Room	N/A	N/A
L00 - Multipurpose Hall	NO (-2.6%)	NO
L00 - Ordinance Room	N/A	N/A
L00 - Pastorate	N/A	N/A
L00 - Restaurant	NO (-14.3%)	NO
L00 - Sanctuary Keepers Room	N/A	N/A
L00 - Sensory Room 01	N/A	N/A
L00 - Toddler Classroom 01	NO (-11.9%)	NO
L00 - Toddler Classroom 02	NO (-11.5%)	NO
L00 - Toddler Classroom 03	NO (-11.8%)	NO
L00 - WSF Secretariat	N/A	N/A
L01 - 8-10 Classroom 01	NO (-45.8%)	NO
L01 - 8-10 Classroom 02	NO (-66%)	NO
L01 - 8-10 Classroom 03	NO (-67.1%)	NO
L01 - 11-12 Classroom 01	NO (-44.8%)	NO
L01 - 11-12 Classroom 02	NO (-44.5%)	NO
L01 - 11-12 Classroom 03	NO (-44.7%)	NO
L01 - ARP Office	NO (-63%)	NO
L01 - Asist Youth Pastor's Office	NO (-67.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L01 - Baptismal Room	N/A	N/A
L01 - Board Room	NO (-49.9%)	NO
L01 - Breakout	YES (+5%)	NO
L01 - Counting Room	NO (-50.5%)	NO
L01 - Finance Office	NO (-37.5%)	NO
L01 - Junior Teens Church	N/A	N/A
L01 - Lounge	NO (-46.3%)	NO
L01 - Media Editing	N/A	N/A
L01 - Meeting Room	NO (-30.2%)	NO
L01 - Nursing Room	NO (-96%)	NO
L01 - Office 01	NO (-51.9%)	NO
L01 - Office 02	NO (-42.4%)	NO
L01 - Office 03	NO (-43.6%)	NO
L01 - Office 04	NO (-45.7%)	NO
L01 - Office 05	NO (-37.4%)	NO
L01 - Pastor's Office	NO (-37.8%)	NO
L01 - Senior Teens Church	NO (-70.7%)	NO
L01 - Sensory Room 02	N/A	N/A
L01 - Server Room	N/A	N/A
L01 - Statutory Bodies	NO (-1.6%)	NO
L01 - Statutory Body 01	NO (-17.7%)	NO
L01 - Statutory Body 02	NO (-27.9%)	NO
L01 - Statutory Body 03	NO (-44.5%)	NO
L01 - Technical Room	N/A	N/A
L01 - Waiting Space	NO (-61.1%)	NO
L01 - Youth Pastor's Office	NO (-69.1%)	NO

Regulation 25A: Consideration of high efficiency 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
Floor area [m ²]	4828.7	4828.7
External area [m ²]	9406.8	9406.8
Weather	BEL	BEL
Infiltration [m ³ /hm ² @ 50Pa]	3	3
Average conductance [W/K]	2082.43	0
Average U-value [W/m ² K]	0.22	0
Alpha value* [%]	26.26	10

* 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

85 Non-residential Institutions: Community/Day Centre

Non-residential Institutions: Libraries, Museums, and Galleries

15 Non-residential Institutions: Education

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	11.99	15.3
Cooling	0.2	0.06
Auxiliary	12.76	5.14
Lighting	11.49	7.78
Hot water	13.24	10.8
Equipment*	15.1	15.1
TOTAL **	49.69	39.08

* 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	17.36	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>17.36</i>	<i>0</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	114.89	154.02
Primary energy [kWh _{PE} /m ²]	50.42	58.43
Total emissions [kg/m ²]	4.88	5.51

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] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	36.8	0	3.9	0	4.6	2.63	0	2.8	0	
Notional	56.7	0	5.7	0	2.6	2.78	0	----	----	
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	174.1	0	18.4	0	0.9	2.63	0	2.8	0	
Notional	236.3	0	23.6	0	0.9	2.78	0	----	----	
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	44.2	0	4.7	0	8.6	2.63	0	2.8	0	
Notional	109.6	0	11	0	11.8	2.78	0	----	----	
[ST] Single-duct VAV, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	15	14.3	1.8	1.2	28.5	2.34	3.44	3.19	5.5	
Notional	26.7	4.1	2.7	0.2	10.1	2.78	4.63	----	----	
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	47.3	16	2.9	0.9	18.9	4.55	4.84	4.64	6.47	
Notional	50.8	4	5.1	0.2	19.7	2.78	4.63	----	----	
[ST] Single-duct VAV, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
Actual	85.4	2.2	10	0.2	35	2.37	3.39	3.19	5.5	
Notional	113.1	1.5	11.3	0.1	10.1	2.78	4.63	----	----	
[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