

Project name

Berneslai Close - Barnsley**As designed****Date:** Tue May 28 15:51:10 2019

Administrative information

Building Details

Address: Berneslai Close, Barnsley,

Certification tool

Calculation engine: SBEM**Calculation engine version:** v5.6.a.1**Interface to calculation engine:** Virtual Environment**Interface to calculation engine version:** v7.0.11**BRUKL compliance check version:** v5.6.a.1

Owner Details

Name: McCarthy & Stone Retirement Lifestyles**Telephone number:** 01202 292480**Address:** 100 Holdenhurst Road, Bournemouth, BH8 8AQ

Certifier details

Name: Focus Consultants 2010 LLP**Telephone number:** 0115 976 5050**Address:** Phoenix Business Park, Nottingham, NG8 6AS**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	34.7
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	34.7
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	34.2
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	0.21	0.21	CR000002_W-1
Floor	0.25	0.11	0.11	CR000002_F
Roof	0.25	0.11	0.11	CR000002_C
Windows***, roof windows, and rooflights	2.2	1.34	1.4	HM000000_W-1_O0
Personnel doors	2.2	1.4	1.4	RF000000_W1_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	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	<0.9

1- Electric Panel

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

1- SYST0002-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	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			
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard	
Guest Bathroom - 3F	-	-	0.4	-	-	-	-	-	-	-	N/A	
Refuse - 0F	0.1	-	-	-	-	-	-	-	-	-	N/A	
Refuse Lobby - 0F	-	1.1	-	-	-	-	-	-	-	-	N/A	
Tea - 0F	-	-	0.4	-	-	-	-	-	-	-	N/A	
WC - 0F	-	-	0.4	-	-	-	-	-	-	-	N/A	

General lighting and display lighting

Zone name	Luminous efficacy [lm/W]			General lighting [W]
	Luminaire	Lamp	Display lamp	
Standard value	60	60	22	
Circulation - 0F	-	110	-	22
Circulation - 0F	-	110	-	98
Circulation - 0F	-	110	-	80
Circulation - 1F	-	110	-	161
Circulation - 2F	-	110	-	161
Circulation - 3F	-	110	-	161
Circulation - 4F	-	110	-	61

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Circulation - Basement	-	110	-	54
Cleaners - 0F	102	-	-	18
Guest Bathroom - 3F	-	70	-	25
Guest Suite - 3F	-	70	-	61
Homeowners Lounge - 0F	110	-	-	326
Mobility Store - 0F	102	-	-	51
Office - 0F	110	-	-	53
Refuse - 0F	102	-	-	83
Refuse Lobby - 0F	102	-	-	20
Stair 1 - 0F	-	81	-	49
Stairs - 1F	-	81	-	29
Stairs - 2F	-	81	-	29
Stairs - 3F	-	81	-	29
Stairs - Basement	-	81	-	43
Stairs 1 - 1F	-	81	-	30
Stairs 2 - 2F	-	81	-	30
Stairs 3 - 3F	-	81	-	30
Stairs 4 - 4F	-	81	-	30
Store - 0F	81	-	-	27
Store - 0F	81	-	-	43
Store - 1F	81	-	-	28
Store - 2F	81	-	-	28
Store - 3F	81	-	-	28
Store - 4F	81	-	-	28
Tea - 0F	110	-	-	42
WC - 0F	-	110	-	27

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?
Guest Suite - 3F	NO (-72.3%)	NO
Homeowners Lounge - 0F	YES (+41.2%)	NO
Office - 0F	N/A	N/A
Tea - 0F	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?	YES
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]	783.3	783.3
External area [m ²]	872.4	872.4
Weather	LEE	LEE
Infiltration [m ³ /hm ² @ 50Pa]	5	3
Average conductance [W/K]	202.72	381.9
Average U-value [W/m ² K]	0.23	0.44
Alpha value* [%]	18.02	17.98

* 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
100 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	45.59	66.21
Cooling	0	0
Auxiliary	0.36	0.81
Lighting	15.65	23
Hot water	4.24	4.9
Equipment*	27.19	27.19
TOTAL **	65.83	94.93

* 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]	245.55	363.68
Primary energy* [kWh/m ²]	202.11	149.51
Total emissions [kg/m ²]	34.2	34.7

* 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] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	138.2	107.4	45.6	0	0.4	0.84	0	1	0
Notional	195.2	168.5	66.2	0	0.8	0.82	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	0.21	CR000002_W-1
Floor	0.2	0.11	CR000002_F
Roof	0.15	0.11	CR000002_C
Windows, roof windows, and rooflights	1.5	0.9	CR000002_C_O0
Personnel doors	1.5	1.4	RF000000_W1_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/(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