

Project name

Shell and Core

Unit G1 Liffords Place

As designed

Date: Mon Apr 13 14:44:03 2015

Administrative information

Building Details

Address: Unit G1 Liffords Place, Barnes High Street,
London, SW13

Certification tool

Calculation engine: SBEM

Calculation engine version: v4.1.e.5

Interface to calculation engine: iSBEM

Interface to calculation engine version: v4.1.e

BRUKL compliance check version: v4.1.e.5

Owner Details

Name: Information not provided by the user

Telephone number: Information not provided by the user

Address: Information not provided by the user, Information not provided by the user, Information not provided by the user

Certifier details

Name: A and K Sustain

Telephone number: 07921 234 899

Address: 63 Knole Road Dartford, Kent, DA1 3JN

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

1.1	CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	37.2
1.2	Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	37.2
1.3	Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	36.6
1.4	Are emissions from the building less than or equal to the target?	BER =< TER
1.5	Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and the building services should achieve reasonable overall standards of energy efficiency

2.a Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.15	0.15	shop/s
Floor	0.25	0.11	0.11	shop/f
Roof	0.25	0.15	0.15	shop/c
Windows***, roof windows, and rooflights	2.2	-	-	"No external windows/rooflights"
Personnel doors	2.2	-	-	"No external personnel doors"
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	10

2.b Building services

The building services parameters listed below are expected to be checked by the BCO against guidance. No automatic checking is performed by the tool.

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- central heating

Heating seasonal efficiency	Cooling nominal efficiency	SFP [W/(l/s)]	HR seasonal efficiency
0.65	-	-	-
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system			YES

1- Basic HWS

Heating seasonal efficiency	Hot water storage loss factor [kWh/litre per day]
Hot water provided by HVAC system	-

"No zones in project where local mechanical ventilation or exhaust is applicable"

Shell and core configuration

Zone	Assumed shell?
shop	NO

General lighting and display lighting

Zone	General lighting [W]	Display lamps efficacy [lm/W]
shop	1250	15

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?
shop	NO (-70.1%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the 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]	156.1	156.1
External area [m ²]	317.4	317.4
Weather	LON	LON
Infiltration [m ³ /hm ² @ 50Pa]	10	5
Average conductance [W/K]	60.9	151.08
Average U-value [W/m ² K]	0.19	0.48
Alpha value* [%]	33.96	17.64

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
100	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 Inst.: Hospitals and Care Homes
	C2 Residential Inst.: Residential schools
	C2 Residential Inst.: Universities and colleges
	C2A Secure Residential Inst.
	Residential spaces
	D1 Non-residential Inst.: Community/Day Centre
	D1 Non-residential Inst.: Libraries, Museums, and Galleries
	D1 Non-residential Inst.: Education
	D1 Non-residential Inst.: Primary Health Care Building
	D1 Non-residential Inst.: 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	16.33	23.77
Cooling	0	0
Auxiliary	2.29	1.14
Lighting	61.17	62.48
Hot water	2.75	2.03
Equipment*	20.26	20.26
TOTAL**	82.53	89.42

* Energy used by equipment does not count towards the total for 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	Indicative Target
Heating + cooling demand [MJ/m ²]	257.01	319.9
Primary energy* [kWh/m ²]	204.74	207.44
Total emissions [kg/m ²]	36.6	37.2

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance

System Type	Heat dem MJ/m ²	Cool dem MJ/m ²	Heat con kWh/m ²	Cool con kWh/m ²	Aux con kWh/m ²	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	35.9	221.1	16.3	0	2.3	0.61	0	0.65	0
Notional	67.8	252.1	23.8	0	1.1	0.79 / 0.81	0	----	----

Key to terms

Heat dem [MJ/m ²]	= Heating energy demand
Cool dem [MJ/m ²]	= Cooling energy demand
Heat con [kWh/m ²]	= Heating energy consumption
Cool con [kWh/m ²]	= Cooling energy consumption
Aux con [kWh/m ²]	= 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 BCO can give particular attention to items with specifications that 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	shop/s
Floor	0.2	0.11	shop/f
Roof	0.15	0.15	shop/c
Windows, roof windows, and rooflights	1.5	-	"No external windows/rooflights"
Personnel doors	1.5	-	"No external personnel doors"
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	10