

2 Britannia Street London WCIX 9JE

Mechanical, Electrical and Public Health Engineering Services

Energy Strategy Report

Document Reference: 5105/01/06/PCR Rev B

Cooper Homewood Limited 12th Floor The Broadgate Tower 20 Primrose Street London EC2A 2EW

Tel: 020 3551 2643 Email:info@cooperhomewood.com

2 Britannia Street, London

Energy Strategy Report



Audit Sheet

Rev.	Description	Prepared and checked by	Reviewed by	Date
А	First Issue	LB	JC/GC	14.10.14
В	Updated to reflect design team comment	LB	JC	20.10.14

2 Britannia Street, London

Energy Strategy Report



Contents

Executi	ive Summary	3
1.0	Introduction	5
2.0	Planning Agreement	6
3.0	Existing Baseline Building	8
3.1 3.2 3.3	Existing Fabric Details Existing Services Details Baseline Carbon Emissions	8
4.0	Proposed Passive Design Measures (Be Lean)	10
4.1	Be Lean Carbon Emission Reductions	10
5.0	Energy Efficient Measures (Be Clean) 1	1
5.1	Be Lean Carbon Emission Reductions	11
6.0	Be Green Technologies (Photovoltaic Panels)	12
7.0	Conclusion 1	13
Append	lix A – Preliminary 'As Designed' SAP Calculations 1	14



Executive Summary

Cooper Homewood (CH) have been appointed by Little Venice Developments ("Client") to undertake the design of the Mechanical, Electrical and Public Health (MEP) Services with an overseeing role during the site works to ensure the MEP installation proceeds in line with the design intent. It is CH's responsibility to develop the energy strategy for the development and implement the use of low/zero carbon (LZC) technologies in line with the recommendations set out in the Syntegra Consulting Energy Strategy Report dated 14th November 2013 submitted with the planning application and referred to in the London Borough of Camden's Section 106 agreement. This report identifies inconsistencies with the Syntegra Consulting Energy Strategy Report and demonstrates how these issues have been addressed during the detailed development of the energy strategy.

This report has been prepared to document the data used to inform the Part L1A 2013 assessment for the new residential development at 2 Britannia Street, London. The assessment has been carried out using Elmhurst Energy Design SAP software 2012 to demonstrate the suitability of the proposed passive design measures and to determine the requirement for renewable technologies in line with the previously submitted Energy Strategy Report.

This assessment has demonstrated that the reduction in carbon emission set out in the Syntegra Energy Strategy submitted for planning is achievable through the implementation of the following strategy:

- 'Be Lean' measures; enhanced passive design measures such as improved U values and air tightness.
- 'Be Clean' measures; including highly efficient engineering services such as gas condensing boilers, whole house ventilation with heat recovery and low energy lighting.
- 'Be Green' measures, the incorporation of a complimentary renewable energy source via roof mounted photovoltaic panels.

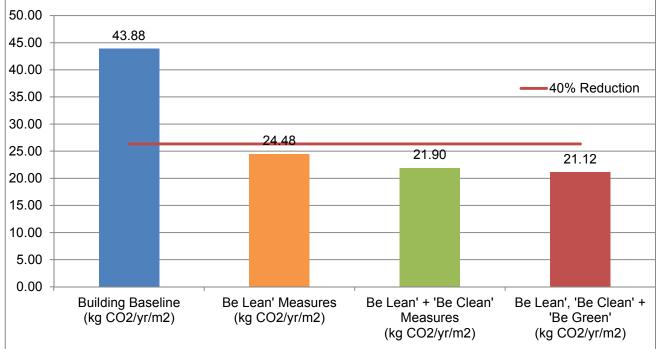


Figure 1: LZC Measure (PV's) Carbon Reduction

Figure 1 illustrates a CO₂ reduction of more than 40% from the original Baseline development and therefore complies with the London Borough of Camden's requirements as set out in the Section 106 agreement.

Date: October 2014 Project number: 5105

Z:\Projects\5105 2 Britannia Street\01 Documents\06 Reports\SAP Assessment Report\5105 - 2 Britannia Street - Energy Strategy Report - Rev B.docx



The report has identified a number of inconsistencies with the Syntegra Consulting Energy Strategy Report submitted for planning, which can be summarised as follows:

- The existing Baseline building emissions as calculated by CH is estimated to be higher than the emissions predicted by Syntegra.
- The CO₂ emissions reductions as a result of 'Be Lean' passive design measures are estimated to be higher than Syntegra have estimated.
- The stated peak PV power of 7.85kW is not achievable with 6.52m² of roof area and it has been determined that 38m² would be required, which is not considered to be feasible. It is therefore proposed to provide the 6.5m² of PV array, which provides a reduced peak output of 1.31kW.
- Taking into consideration these inconsistencies and through the use of approved SAP software it is still predicted that the buildings CO₂ emissions will be reduced by at least 40% as per the original intent.



1.0 Introduction

Cooper Homewood (CH) have been appointed by Little Venice Developments ("Client") to undertake the design of the Mechanical, Electrical and Public Health Engineering Services with an overseeing role during the site works to ensure the installation proceeds in line with the design intent. It is CH's responsibility to develop the energy strategy for the development and implement the use of low/zero carbon (LZC) technologies in line with the recommendations set out in the Syntegra Consulting Energy Strategy Report dated 14th November 2013 submitted with the planning application and referred to in the London Borough of Camden's Section 106 agreement.

This report has been prepared to document the data used to inform the Part L1A 2013 assessment for the new residential development at 2 Britannia Street, London.

The preliminary Part L assessment informs the main part of the energy strategy and determines the extent of the CO₂ emissions reductions for the development. The assessments have been carried out using Elmhurst Energy Design SAP software 2012 to demonstrate the suitability of the proposed passive design measures and to determine the requirement for renewable technologies in line with the previously submitted Energy Strategy Report.

The report addresses carbon reduction measures only and does not develop further on the BREEAM Domestic Refurbishment requirements, which will be developed in line with the Energy Strategy submitted for planning by the respective members of the design team.

This report identifies inconsistencies with the Syntegra Consulting Energy Strategy Report and demonstrates how these issues have been addressed during the detailed development of the energy strategy.



2.0 Planning Agreement

The London Borough of Camden's section 106 agreement dated 6th October 2014 identifies the requirements for demonstrating that the development carbon emissions will target a minimum 40% reduction from the existing development using a combination of complimentary low and zero carbon technologies in line with the Syntegra Consulting Energy Strategy Report.

During the detailed development of the energy strategy a number of inconstancies have been found with the previously submitted Syntegra report, which are summarised as follows:

- The report proposes 7.85kW of peak photovoltaic (PV) power as part of the 'Be Green' measures. The report states that this is to be provided by 24 No. panels, which equates to 6.52m² of total required roof area. 7.85kWp actually equates to 38m² of PV panels, which is not feasible for the following reasons:
 - Access is required around the PV panels for maintenance purposes and space is required for roof terminations for soil vent pipes. Therefore even with both flat roof sections being covered the stated 38m² of roof area is not achievable.
 - The site is located in a conservation area and therefore it is the Client's intension to limit the visible impact of the PV panels.
- In order to demonstrate the extent of the CO₂ reductions as a result of enhanced passive design measures and low/zero carbon technologies the existing building Baseline emissions must be calculated. The Syntegra report identities the standard case minimum space and water heating services as well as the existing envelope specification. CH have taken the same input data and entered this into an approved SAP calculation software package (Elmhurst Energy Design SAP software) but have determined higher emission rates for the Baseline building, which is illustrated in figure 2:

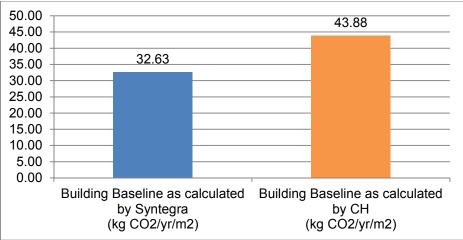


Figure 2: Baseline Emissions Comparison

• The Syntegra report identifies the CO₂ emissions reductions as a result of passive design measures, which include enhanced U values and air permeability. CH have used the same data and found that the emissions rate is lower than the figure estimated by Syntegra as illustrated in figure 3:

2 Britannia Street, London

Energy Strategy Report



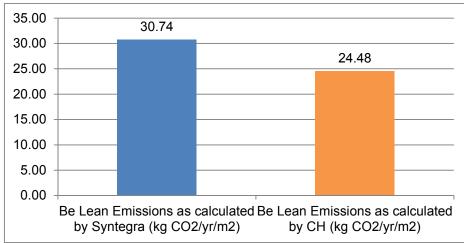


Figure 3: 'Be Lean' Emissions Comparison

 Ω End of Section



3.0 Existing Baseline Building

This section details the information used to define the existing building carbon emissions. The purpose of this exercise is to establish the 'Baseline' carbon emissions for the development to enable the new passive and LZC technologies to be assessed. The data used is extracted from the Syntegra Energy Strategy Report submitted for planning.

3.1 Existing Fabric Details

The following construction details have been used in CH's baseline SAP calculations.

Passive Item	Values
External Wall U-Value	0.56 W/m ² K
Roof U-Value	0.16 W/m ² K
Ground Floor U-Value	1.6 W/m²K
Front Door U-Value	2.0 W/m ² K
Windows U-value	4.8 W/m ² K
Glazing Type	Single glazed with a wooden
	frame
Thermal Bridging (Y Value)	0.15 Default within SAP 2012
Air Permeability	15 m3/h.m2 at 50 Pa

3.2 Existing Services Details

The following services details have been used in CH's baseline SAP calculations.

Services Item	Values
Main Heating Fuel:	Mains gas
Main Heating System:	Boilers and radiator
Boiler	SEDBUK (2009) 88%
	efficient. On/off burner
	control
Heating System Controls:	Programmer, room
	thermostat, TVRs, boiler
	interlock
Hot Water System:	Stored hot water, heated
	by boiler only. Separate
	time control for space
	and water heating
Hot Water Storage:	150 Litre cylinder
	insulted with 35mm of
	factory applied foam.
Primary water heating losses:	Primary pipework
	insulted, cylinder
	temperature controlled
	by thermostat.
% Low Energy Light Fittings:	0
LZC Technologies:	None



3.3 Baseline Carbon Emissions

Based upon the above data the existing carbon emissions for the development is as follows;

Overall: 43.88 kgCO₂/yr/m²

Full calculations for the base case devlopment are provided in the appendices of this report. A summary of anticipated energy usage and carbon emissions is as follows:

Services	Existing Building Energy Use (kWh/m²/yr)	Existing Building CO ₂ Emissions (kgCO ₂ /yr/m ²)
Heating:	148.92	32.17
Hot Water:	29.12	6.29
Lighting:	1.80	0.94
Auxiliary:	8.64	4.49
Total:	188.49	43.88

 Ω End of Section



4.0 Proposed Passive Design Measures (Be Lean)

The following improved passive design measures are as per the stated measures detailed within Syntegra Energy Strategy under 'Be Lean' measures:

Passive Item	Values	Notes
External Wall U Value	0.2 W/m ² K	Enhanced to meet Syntegra
		requirements.
External Wall (Extension)	0.25 W/m ² K	Stated within Syntegra Report.
External Roof U Value	0.16 W/m ² K	Same as existing value stated
		within the report.
Ground Floor U-Value	0.2 W/m ² K	Enhanced to meet Syntegra
		requirements.
Front Door U Value	2.0 W/m ² K	Based upon Part L.
Windows U value	1.4 W/m ² K	Secondary glazing to be applied on
		all existing single glazed windows.
Secondary and New	Double glazed	As stated within Syntegra report.
Glazing Type		
Thermal Bridging (Y Value)	0.15	Default within SAP 2012.
Air Permeability	11 m3/h.m2 at 50 Pa	Enhanced air permeability from
		existing.

4.1 Be Lean Carbon Emission Reductions

Figure 4 illustrates the Baseline CO_2 emissions for the development and compares this against the 'Be Lean' scheme which incorporates improved passive design measures. It can be seen that through enhanced fabric details the proposed building CO_2 emissions are reduced by more than 40%.

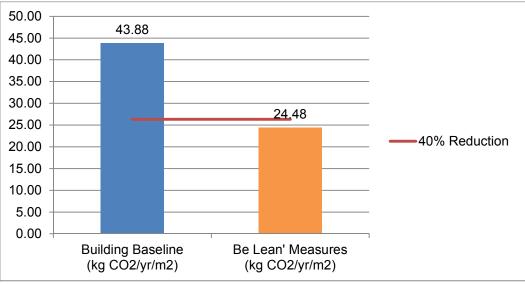


Figure 4: Be Lean Carbon Emission Reduction



5.0 Energy Efficient Measures (Be Clean)

The following services details (stated within Syntegra Energy Strategy under 'Be Clean' measures) have been modelled and consider the use of highly efficient lighting, boilers, hot water storage, ventilation and controls:

Items	Values	Notes
Boiler	91%	91% is the highest efficiency on the SEDBUK database for gas condensing boilers.
Hot Water Storage	Cylinder insulation increased to 80mm	
Ventilation Specific Fan Power	0.8	This is based on a small residential
Ventilation Heat Recovery Efficiency	90%	type MVHR unit.
% Low Energy Light Fittings	100	As stated within Syntegra report.

5.1 Be Lean Carbon Emission Reductions

Figure 5 shows the Baseline carbon emissions and the reductions as a result of the 'Be Lean' and 'Be Clean' measures. It can been seen through enhancing these systems the overall carbon emission figure for the development reduces by a further 6%, a 50% improvement over the Baseline figure.

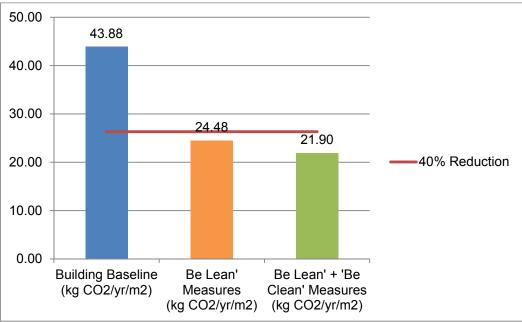


Figure 5: Be Clean Carbon Emission Reduction



6.0 Be Green Technologies (Photovoltaic Panels)

It is proposed to introduce renewable technologies to further reduce the overall carbon emission levels of the development. This will be achieved by using photovoltaic (PV) panels on the roof. The proposal is to use 6.5m² of PV panels on the main buildings new roof. This equates to four panels with a peak load of 1.308kW.

Figure 6 shows the reduction in carbon emissions through 'Be lean' and 'Be Clean' measures with further improvement with the inclusion of 6.5m² PV panels. It can be seen through the use of PV panels the total carbon emission rate is reduced by 51% from the Baseline development.

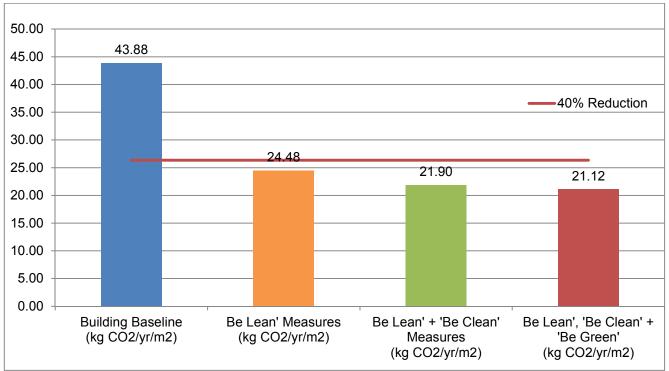


Figure 6: LZC Measure (PV's) Carbon Reduction



7.0 Conclusion

This assessment has demonstrated that the 40% reduction in carbon emissions as requested by The London Borough of Camden is achievable through the implementation of the following strategy:

- 'Be Lean' measures; enhanced passive design measures such as improved U values and air tightness.
- 'Be Clean' measures; including highly efficient engineering services such as gas condensing boilers, whole house ventilation with heat recovery and low energy lighting.
- 'Be Green' measures, the incorporation of a complimentary renewable energy source via roof mounted photovoltaic panels.

The report has identified the inconsistencies with the Syntegra report submitted for planning, which can be summarised as follows:

- The existing Baseline building emissions as calculated by CH is estimated to be higher than the emissions predicted by Syntegra.
- The CO₂ emissions reductions as a result of 'Be Lean' passive design measures are estimated to be higher than Syntegra have estimated.
- The peak PV power of 7.85kW is not achievable with 6.52m² of roof area and it has been determined that 38m² would be required, which is not considered to be feasible. It is therefore proposed to provide the 6.5m² of PV array, which provides a reduced peak output of 1.31kW.
- Taking into consideration these inconsistencies and through the use of approved SAP software it is still predicted that the buildings CO₂ emissions will be reduced by at least 40% as per the original intent.

Ω End of Section



Appendix A – Preliminary 'As Designed' SAP Calculations



Property: Bri	erence:		ent 1				n Date: 14.Oct	.2014
	tannia Stroo		n Assessment s, London, WC1X 9E			Proping	pe Ref: Flat	
		missions (t/ye		DER: 21.99 Fail	TER: 15.89	Perce	ntage DER <ter< th=""><th>-38.40</th></ter<>	-38.40
Environmental:8		•	nts Compliance: Fail	DFEE:72.20 Fail	TFEE:52.20		ntage DFEE <tfe< th=""><th></th></tfe<>	
Surveyor:	Versi		redited), Tel: 4, Fax	Credits: N/AENE2	Credits: N/A	ENE7 Credits	urveyor ID: A	evel: N/A
Address: Client:	admin Ad					0		
			Systems SAP2012 on: England (Part L					
SUMMARY	For Inpu	T DATA FO	R New Build (As D	esigned)			Pa	age 1 of 4
Drientation			South					
.0 Property Ty			Flat, End-Terrace					
2.0 Number of \$ 3.0 Date Built	storeys		3 2014					
8.0 Property Ag	e Band		2014					
.0 Sheltered S			4 Mana than average					
5.0 Sunlight/Sha 5.0 Measureme			More than average					
	1115	Heatler	a Dorimotor	Internal Floor Area	Average S	torov Hoight		
			ss Perimeter	Internal Floor Area	Ū	torey Height		
	Basement		8.60	59.30		.80		
	1st Storey		4.95	33.80		.60		
O Living Aroo	2nd Storey	: 1	2.30	38.74	3.	.00		
7.0 Living Area 8.0 Thermal Ma	ss Paramete	er	Simple calculation -	Hiah				
0.0 External Wa								
Description			Construction		U-Value	Kappa	Gross Area	Nett Area
External Wall			Other		0.20		61.67	48.29
Extension Wall			Other		0.25		81.13	81.13
0.1 Party walls Description			Construction		Ка	ppa /	Area	
Party Wall			Other			ç	99.00	
0.1 Party Ceilin Description	ngs		Construction		Ка	ppa /	Area	
Party Ceilings			Concrete floor slab,	carpeted		3	88.74	
1.0 HeatLoss I Description	Floors		Construction		U-Value	Kappa	Area	
leat Loss Floor			Suspended concret	e floor, carpeted	0.20		59.30	
2.0 Opening T Description D	ypes ata Source	Туре	Glazing G	Blazing Gap Argon Fill	ed Solar Trar	ns Frame Typ	e Frame Facto	r U value
	anufacturer anufacturer	Solid Door Window	Double Low-E Soft 0.05		0.63		0.70	2.00 1.40
3.0 Openings lame O	pening Type	Location	n Orientation	Curtain Type	Overhang Wi Ratio Over	VVidth H	leight Count Area	a Curtain Closed

Curtain Closed South Glazing Window [1] External Wall 0.00 8.32 South None New Front Door Solid Door [1] External Wall South 1.80 Glazing [1] External Wall Window South None 0.00 3.26 14.0 Conservatory None

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Page 2 o	of 4
----------	------

15.0 Draught Proofing	100	h			
16.0 Draught Lobby	No				
17.0 Thermal Bridging		fault			
Y-value	0.1				
Description	0.1	00			
18.0 Pressure Testing	Ye	5			
Designed q50	11.				
Property Tested ?					
As Built g50					
Same As Designed ?					
19.0 Mechanical Ventilation					
Mechanical Ventilation System	Ye	\$			
Present	10	5			
Approved Installation	Ye	\$			
Windows open in hot weather			alf open		
Cross ventilation possible	No		ian opon		
Night Ventilation	Ye				
Air change rate	2.5				
Mechanical Ventilation data Type		ta Shee	t		
Туре				al ventila	tion with heat recovery
MV Reference Number					, , , , , , , , , , , , , , , , , , ,
Configuration					
MVHR Duct Insulated	Ye	S			
Manufacturer SFP	0.8	0			
Duct Type		mi rigid			
MVHR Efficiency	90.				
Wet Rooms	5				
Brand, Model	ТВ	С			
20.0 Fans, Open Fireplaces, Flues					
	MHS	SHS	Other	Total	
Number of Chimneys	0		0	0	
Number of open flues	0		0	0	
•	0		0		
Number of intermittent fans				0	
Number of passive vents				0	
Number of flueless gas fires				0	
21.0 Cooling System	No				
	INU				
22.0 Lighting					
Internal					
Total number of light fittings	12				
Total number of L.E.L. fittings					
Percentage of L.E.L. fittings	100	0.00			
External	No				
External lights fitted	INU				
Light and motion sensors 23.0 Electricity Tariff	Sta	Indard			
	012	inuaru			
24.0 Heating Systems					
Main Heating 1		nufactu s Fired			
Description Percentage of Heat		s Fired	DOILEL		
Percentage of Heat	100 No) %			
Main Heating 2 Description	INO				
Percentage of Heat	%				
Community Heating	No	ne			
Secondary Heating	No				
Water Heating		in Heati	ina 1		
Flue Gas Heat Recovery System	No				
Waste Water Heat Recovery	No				
Instantaneous System 1	110				
Waste Water Heat Recovery	No				
Instantaneous System 2					
Waste Water Heat Recovery Stora	age No				
System					
Solar Panel	No				
25.0 Main Heating 1					
Database Ref. No.					
Fuel Type					
Main Heating	BG	в			
TestMethod					
SAP Code	102	2			
Efficiency (Sedbuk 2009) %	91.				
Efficiency (Sedbuk 2009) %	011				
In Winter					
In Summer					
Model Name	ТВ	С			

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

	(New Balla (As Besignea)	Page 3 01 4
Manufacturer	TBC	
Controls	CBE Programmer, room thermostat and TRVs	
PCDF Controls	0	
Delayed Start Stat	Yes	
Sap Code	2106	
Burner Control	On/Off	
Boiler Compensator		
HETAS approved System		
Oil Pump Inside		
FI Case		
FI Water		
Flue Type	None or Unknown	
Smoke Control Area		
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heat Emitter	Radiators	
Underfloor Heating	Tradiators	
Flow Temperature		
Electric CPSU Temperature		
Combi boiler type		
Combi keep hot type		
Combi store type		
27.0 Community Heating		
Space Community Heating		
PCDF Index		
Distribution Loss		
Distribution Loss Value		
Controls		
SAP Code		
Water Community Heating		
PCDF Index		
Distribution Loss		
Distribution Loss Value		
Charging Linked To Heat Use		
28.0 Secondary Heating		
Description		
SHS efficiency %		
SAP Code		
HETAS Approved System		
Smoke Control Area		
Test Method		
Manufacturer		
Model Name		
29.0 Water Heating	HWP From main heating 1	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
Immersion Heater		
Summer Immersion		
Suplementary Immersion		
Immersion Only Heating Hot Water		
29.1 Flue Gas Heat Recovery System		
Database ID		
Brand Model		
Details		
29.2 Waste Water Heat Recovery		
System		
Total rooms with shower and/or bath		
30.0 Hot Water Cylinder	Hot Water Cylinder	
	Hot Water Cylinder Yes	
Cylinder Stat Cylinder In Heated Space	Yes	
	Yes	
Independent Time Control Insulation Type	Foam	
Insulation Type	i Valli	
Cylinder Volume	150.00	
	100.00	
Loss (kwh/day) Pipes insulation	Fully insulated primary pinework	
	Fully insulated primary pipework	
In Airing Cupboard		
31.0 Solar Panel		
Solar Panel Area		
Area Type		
Panel Type		
n0, a1, a2, A/G ratio		
Orientation		
Elevation		
Overshading		
Solar Storage Volume		

Pump electr Combined C	rically powered Cylinder		
32.0 Thermal Store Thermal Store	tore pre Pipework	Nor	ne
33.0 Photovolta Apportioned		One	e Dwelling
PV Cells kW Pe	eak Orientation	Elevation	Overshading
0.16	South	30°	None Or Little
34.0 Wind Turb			
Terrain Type Wind Turbin		Urb	ban
Count			
Apportioned Rotor Diame			
Hub Height			
35.0 Small-scal	e Hydro		
Electricity G Description			
Apportioned			
Recommendation	ons		
None			

Further measures to achieve even higher standards

None



Summary Information

Property Reference: Apartment 2 Survey Reference: Be Green Assessment

Issued on Date: 14.Oct.2014 Prop Type Ref: Flat

Property: Britannia Street, Kings Cross, London, WC1X 9EJ

	82 B CO2 Emissions (1 82 B General Requirer		-		20.09 Fail 65.65 Fail		14.90 :49.02			•		ER: -3 TFEE: -3	
CfSH Results	Version:	E	NE1	Credits:	N/AENE2	Credits:	N/A	ENE7	Credits:	N/A	CfSH	H Level:	N/A
Surveyor: Address: Client:	admin Admin (Unad	ccredited), Tel: 4	, Fax	: s@l.f					Su	rveyor	ID:	Admin	
Software Ver	rsion: Elmhurst Energ	y Systems SAP2	012 (Calculat	tor (Desig	n Systen	n) vers	sion 2	2.01r06				

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 2.01r06 SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMAR	Y FOR INPU		R New B	uild (As E	Designed)						P	age 1 of 4
Orientation	_		South									
1.0 Property				I-Terrace								
2.0 Number			2									
3.0 Date Buil			2014									
3.0 Property 4.0 Sheltered			4									
5.0 Sunlight/				or unknov	vn							
6.0 Measure			Twerage		VII							
		Heat Los	s Perimete	r	Internal Floo	or Area	Avera	age Storey	Height			
	Basemen	t: 1	9.50		74.69)		3.00				
	1st Storey	/: 1	0.81		67.74	Ļ		3.20				
7.0 Living Ar	ea		54.13									
8.0 Thermal	Mass Paramet	er	Simple of	alculation	- High							
9.0 External	Walls											
Description			Construe	ction			U-Val	ue	Kappa	Gr	oss Area	Nett Area
External Wal	I		Other				0.20)			93.09	78.78
9.1 Party wa Description	lls		Construe	ction				Kappa		Area		
Existing Part	y Wall		Other							162.69		
10.1 Party Control Description	eilings		Construe	ction				Kappa		Area		
Existing Part	y Ceilings		Concrete	e floor slab	o, carpeted					67.74		
11.0 HeatLos	ss Floors											
Description			Construe	ction			U-Val	ue	Kappa		Area	
Heat Loss Fl	oor		Suspend	ded concre	ete floor, car	peted	0.20)			74.69	
12.0 Opening Description	g Types Data Source	Туре	Glazing		Glazing Gap	Argon Filled	l Sola	r Trans	Frame Ty	/pe	Frame Facto	or U value
Front Door	Manufacturer	Solid Door										2.00
Existing Glazing	SAP table	Window	Single gla	zed				١	Vood			4.80
New Glazing	Manufacturer	Window	Double Lo 0.05	ow-E Soft			C).63			0.70	1.40
12.0 Onoria	~~											
13.0 Openino Name	gs Opening Type	Location	1	Orientatio	n Curtain Ty	ре	Overhang Ratio	Wide Overhang	Width	Height	Count Are	a Curtain Closed
Front Door	Solid Door	[1] Exter	nal Wall	South							2.3	4
North East Glazing	Window	[1] Exter		North Eas	t None		0.00				8.4	
South Glazing	Window	[1] Exter	nal Wall	South	None		0.00				3.5	6
14.0 Conserv	vatory		None									

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Page 2 o	of 4
----------	------

15.0 Draught Proofing	100			
16.0 Draught Lobby	No			
	Default			
17.0 Thermal Bridging				
Y-value Description	0.150			
	Yes			
18.0 Pressure Testing Designed q50	11.00			
Property Tested ?	11.00			
As Built q50				
Same As Designed ?				
19.0 Mechanical Ventilation	N/s s			
Mechanical Ventilation System	Yes			
Present	Vaa			
Approved Installation	Yes			
Windows open in hot weather		s half open		
Cross ventilation possible Night Ventilation	Yes No			
	4.00			
Air change rate	4.00 Data Sh	oot		
Mechanical Ventilation data Type			ol vontile	tion with host recovery
Type MV Reference Number	Dalance			tion with heat recovery
Configuration				
MVHR Duct Insulated	Yes			
Manufacturer SFP	0.80			
Duct Type	Semi ric	iid		
MVHR Efficiency	90.00	μu		
Wet Rooms	90.00 5			
Brand, Model	TBC			
20.0 Fans, Open Fireplaces, Flues	.00			
	IHS SH	S Other	Total	
Number of Chimneys	0	0	0	
Number of open flues	0	0	0	
Number of intermittent fans			0	
Number of passive vents			0	
•				
Number of flueless gas fires			0	
21.0 Cooling System	No			
22.0 Lighting				
Internal				
Total number of light fittings	14			
Total number of L.E.L. fittings	14			
Percentage of L.E.L. fittings	100.00			
External				
External lights fitted	No			
Light and motion sensors				
23.0 Electricity Tariff	Standar	d		
24.0 Heating Systems				
Main Heating 1	Manufa	cturer		
Description	Boilers			
Percentage of Heat	100 %			
Main Heating 2	None			
Description				
Percentage of Heat	%			
Community Heating	None			
Secondary Heating	None			
Water Heating	Main He	eating 1		
Flue Gas Heat Recovery System	No	3		
Waste Water Heat Recovery	No			
Instantaneous System 1	-			
Waste Water Heat Recovery	No			
Instantaneous System 2				
Waste Water Heat Recovery Storag	e No			
System				
Solar Panel	No			
25.0 Main Heating 1				
Database Ref. No.				
Fuel Type				
Main Heating	BGB			
TestMethod				
SAP Code	102			
Efficiency (Sedbuk 2009) %	91.0			
Efficiency (Sedbuk 2009) %				
In Winter				
In Summer				
	TBC			
Model Name	IDC			

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

	(New Balla (As Besignea)	Page 3 01 4
Manufacturer	TBC	
Controls	CBE Programmer, room thermostat and TRVs	
PCDF Controls	0	
Delayed Start Stat	Yes	
Sap Code	2106	
Burner Control	On/Off	
Boiler Compensator		
HETAS approved System		
Oil Pump Inside		
FI Case		
FI Water		
Flue Type	None or Unknown	
Smoke Control Area		
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heat Emitter	Radiators	
Underfloor Heating	Tradiators	
Flow Temperature		
Electric CPSU Temperature		
Combi boiler type		
Combi keep hot type		
Combi store type		
27.0 Community Heating		
Space Community Heating		
PCDF Index		
Distribution Loss		
Distribution Loss Value		
Controls		
SAP Code		
Water Community Heating		
PCDF Index		
Distribution Loss		
Distribution Loss Value		
Charging Linked To Heat Use		
28.0 Secondary Heating		
Description		
SHS efficiency %		
SAP Code		
HETAS Approved System		
Smoke Control Area		
Test Method		
Manufacturer		
Model Name		
29.0 Water Heating	HWP From main heating 1	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
Immersion Heater		
Summer Immersion		
Suplementary Immersion		
Immersion Only Heating Hot Water		
29.1 Flue Gas Heat Recovery System		
Database ID		
Brand Model		
Details		
29.2 Waste Water Heat Recovery		
System		
Total rooms with shower and/or bath		
30.0 Hot Water Cylinder	Hot Water Cylinder	
	Hot Water Cylinder Yes	
Cylinder Stat Cylinder In Heated Space	Yes	
	Yes	
Independent Time Control Insulation Type	Foam	
Insulation Type	i Valli	
Cylinder Volume	150.00	
	100.00	
Loss (kwh/day) Pipes insulation	Fully insulated primary pinework	
	Fully insulated primary pipework	
In Airing Cupboard		
31.0 Solar Panel		
Solar Panel Area		
Area Type		
Panel Type		
n0, a1, a2, A/G ratio		
Orientation		
Elevation		
Overshading		
Solar Storage Volume		

Pump electr Combined C	rically powered Cylinder			
32.0 Thermal Store Thermal Store	tore pre Pipework	Nor	None	
33.0 Photovolta Apportioned		One Dwelling		
PV Cells kW Pe	eak Orientation	Elevation	Overshading	
0.16	South	30°	None Or Little	
34.0 Wind Turb				
Terrain Type Wind Turbin		Urb	ban	
Count				
Apportioned Rotor Diame				
Hub Height				
35.0 Small-scal	e Hydro			
Electricity G Description				
Apportioned				
Recommendation	ons			
None				

Further measures to achieve even higher standards

None



Summary Information

Property Reference	: Apartment 3
Survey Reference:	Be Green Assessment

Issued on Date: 14.Oct.2014 Prop Type Ref: Flat

Property: Britannia Street, Kings Cross, London, WC1X 9EJ

Environmental.	9 C General Requirements Complianc	e: Fail	DFEE:	77.41 Fail		18.51 :58.13	Percent	•		R: -3 FEE: -3	
CfSH Results	Version:	ENE1	Credits:	N/AENE2	Credits:	N/A ENE7	Credits:	N/A	CfSH	Level:	N/A
Surveyor: Address: Client:	admin Admin (Unaccredited), Tel:	4, Fax	«: s@l.f				Su	rveyor	ID:	Admin	

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 2.01r06 SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed ftware Version: Elmhurst Energy

SUMMARY FOR INPU	T DATA FOR New E	Build (As D	esigned)				Page 1 of 4
Orientation 1.0 Property Type 2.0 Number of Storeys 3.0 Date Built 3.0 Property Age Band 4.0 Sheltered Sides 5.0 Sunlight/Shade	2 2014 2	ast d-Terrace e or unknow	'n				
6.0 Measurements							
	Heat Loss Perimete	er	Internal Floor Area	Average	Storey Height		
Basement			48.45		3.00		
1st Storey:			41.77		3.20		
7.0 Living Area 8.0 Thermal Mass Parameter	38.54	calculation -	High				
9.0 External Walls Description	Constru		riign	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other			0.20		120.88	97.12
9.1 Party walls Description	Constru	ction		К	appa	Area	
Existing Party Wall	Other				ł	59.45	
10.1 Party Ceilings Description	Constru	ction		К	appa	Area	
Existing Party Ceilings	Concret	e floor slab,	, carpeted		2	41.77	
11.0 HeatLoss Floors Description	Constru	ction		U-Value	Kappa	Area	
Heat Loss Floor	Suspen	ded concret	e floor, carpeted	0.20		48.45	
12.0 Opening Types Description Data Source	Type Glazing	C	Blazing Gap Argon Fil	led Solar Tra	ans Frame Typ	be Frame Fa	ctor U value
Front Door Manufacturer Double Glazing Manufacturer	Solid Door Window Double L 0.05	ow-E Soft		0.63		0.70	2.00 1.40
13.0 Openings Name Opening Type	Location	Orientation	Curtain Type	0	/ide Width H erhang	Height Count A	rea Curtain Closed
Front Door Solid Door North East Existing Window	[1] External Wall [1] External Wall	North East North East		0.00			.53 .18
South Existing Window East Existing Window	[1] External Wall [1] External Wall	South East	None None	0.00 0.00			.92 .13
14.0 Conservatory 15.0 Draught Proofing	None 100	200				,	

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

16.0 Draught Lobby	No				
17.0 Thermal Bridging		fault			
Y-value	0.1				
Description					
18.0 Pressure Testing	Ye				
Designed q50	11.	.00			
Property Tested ? As Built q50					
Same As Designed ?					
19.0 Mechanical Ventilation					
Mechanical Ventilation System	Ye	s			
Present					
Approved Installation	Ye				
Windows open in hot weather Cross ventilation possible	Wii Ye		alf open		
Night Ventilation	No				
Air change rate	4.0				
Mechanical Ventilation data Type	Da	ta Shee	t		
Туре	Ba	lanced r	nechanic	al ventila	tion with heat recovery
MV Reference Number					
Configuration MVHR Duct Insulated	Ye	c			
Manufacturer SFP	0.8				
Duct Type		mi rigid			
MVHR Efficiency	90.	.00			
Wet Rooms	4	~			
Brand, Model	ТВ	C			
20.0 Fans, Open Fireplaces, Flues	MHS	SHS	Other	Total	
Number of Chimneys	0	5110	0	0	
Number of open flues	0		0	0	
Number of intermittent fans	0		0	0	
				-	
Number of passive vents				0	
Number of flueless gas fires				0	
21.0 Cooling System	No				
22.0 Lighting Internal					
Total number of light fittings	12				
Total number of L.E.L. fittings	12				
Percentage of L.E.L. fittings	100	0.00			
External					
External lights fitted Light and motion sensors	No				
23.0 Electricity Tariff	Sta	andard			
24.0 Heating Systems	010				
Main Heating 1	Ma	Inufactu	rer		
Description		s Fired I	Boilers		
Percentage of Heat		0 %			
Main Heating 2 Description	No	ne			
Percentage of Heat	%				
Community Heating	No	ne			
Secondary Heating	No				
Water Heating		in Heati	ng 1		
Flue Gas Heat Recovery System Waste Water Heat Recovery	No No				
Instantaneous System 1	INU				
Waste Water Heat Recovery	No				
Instantaneous System 2					
Waste Water Heat Recovery Storag	ge No				
System Solar Panel	No				
25.0 Main Heating 1	INU				
Database Ref. No.					
Fuel Type					
Main Heating	BG	βB			
TestMethod SAP Code	102	2			
Efficiency (Sedbuk 2009) %	91.				
Efficiency (Sedbuk 2009) %	51.	-			
In Winter					
In Summer		~			
Model Name Manufacturer	TB TB				
		0			

Controls	CBE Programmer, room thermostat and TRVs
PCDF Controls	0
Delayed Start Stat	Yes
Sap Code Burner Control	2106 On/Off
Boiler Compensator	01/01
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	
Flue Type	None or Unknown
Smoke Control Area	
Fan Assisted Flue Is MHS Pumped	Yes Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	Nation 5
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
Combi store type	
27.0 Community Heating	
Space Community Heating PCDF Index	
Distribution Loss	
Distribution Loss Value	
Controls	
SAP Code	
Water Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Charging Linked To Heat Use	
28.0 Secondary Heating	
Description SHS efficiency %	
SAP Code	
HETAS Approved System	
Smoke Control Area	
Test Method	
Manufacturer	
Model Name	
29.0 Water Heating	HWP From main heating 1
Water use <= 125 litres/person/day	Yes
SAP Code	901
Immersion Heater Summer Immersion	
Suplementary Immersion	
Immersion Only Heating Hot Water	
29.1 Flue Gas Heat Recovery System	
Database ID	
Brand Model	
Details	
29.2 Waste Water Heat Recovery	
System Total rooms with shower and/or bath	
30.0 Hot Water Cylinder	Hot Water Cylinder
Cylinder Stat	Yes
Cylinder In Heated Space	Yes
Independent Time Control	Yes
Insulation Type	Foam
Insulation Thickness	150.00
Cylinder Volume	150.00
Loss (kwh/day) Pipes insulation	Fully insulated primary pipework
In Airing Cupboard	
31.0 Solar Panel	
Solar Panel Area	
Area Type	
Panel Type	
n0, a1, a2, A/G ratio	
Orientation	
Elevation Overshading	
Solar Storage Volume	
Pump electrically powered	

32.0 Thermal Store Thermal Store Pipewo	ork	ne	
	Or		
33.0 Photovoltaic Unit		e Dwelling	
Apportioned KWh/Yea		O ve ve h e eline e	
PV Cells kW Peak Orient	tation Elevation	Overshading	
0.16 South	30°	None Or	
0.10 30001	30	Little	
24.0 Mind Turkings			
34.0 Wind Turbines Terrain Type	l Ir	ban	
Wind Turbines	01	Jan	
Count			
Apportioned Kwh/year	r		
Rotor Diameter			
Hub Height			
35.0 Small-scale Hydro			
Electricity Generated			
Description			
Apportioned kWh/Yea	r		
Recommendations			
None			

Further measures to achieve even higher

standards

None



CfSH Level:

Admin

N/A

Summary Information Property Reference: Apartment 4 Issued on Date: 14.Oct.2014 Survey Reference: Be Green Assessment Prop Type Ref: Flat 2, Britannia Street, Kings Cross, London, WC1X 9EJ SAP Rating: 84 B CO2 Emissions (t/year): 0.70 DER: 17.66 Fail **TER:** 16.46 Percentage DER<TER: -7.26 % Environmental:89 B General Requirements Compliance: Fail DFEE:42.43 Fail TFEE:31.46 Percentage DFEE<TFEE: -34.88 % ENE1 Credits: N/A ENE2 Credits: N/A ENE7 Credits: N/A admin Admin (Unaccredited), Tel: 4, Fax: s@l.f Surveyor ID:

Surveyor: Address: Client:

Property:

CfSH Results

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 2.01r06 SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Version:

SUMMARY FOR INP	UT DATA FO	R New B	Build (As E	Designed)							Pag	je 1 of 4
Orientation 1.0 Property Type 2.0 Number of Storeys 3.0 Date Built 3.0 Property Age Band 4.0 Sheltered Sides 5.0 Sunlight/Shade		1 2014 4	ast I-Terrace e or unknov	vn								
6.0 Measurements												
	Heat Los	ss Perimete	r	Internal Floo	or Area	Aver	age Storey	Height				
Ground Flo	or: 9	9.80		51.72			3.20					
7.0 Living Area		32.22										
8.0 Thermal Mass Parame	eter	Simple of	calculation	- High								
9.0 External Walls Description		Constru	ction			U-Va	lue	Kappa	Gro	oss Are	a	Nett Area
Existing Wall	Existing Wall					0.20		1	31.36		25.31	
9.1 Party walls												
Description	escription Construction		ction				Kappa		Area			
Party Wall 1	arty Wall 1 Other								79.33			
10.1 Party Ceilings Description	, ,		ction				Kappa		Area			
Party Ceilings Co		Concret	Concrete floor slab, carpeted 51.72									
11.1 Party Floors Description		Constru	ction				Kappa		Area			
Party Floor		Concret	e floor slab	, carpeted					51.72			
12.0 Opening Types Description Data Source	Туре	Glazing		Glazing Gap	Argon Filled	d Sola	ar Trans F	Frame Ty	/pe l	Frame F	actor	U value
New Glazing Manufacturer	Window	Double Lo 0.05	ow-E Soft				0.63			0.70)	1.40
13.0 Openings Name Opening Type	e Locatior	ו	Orientatio	n Curtain Ty	pe	Overhang Ratio	Wide Overhang	Width	Height (Count	Area	Curtain Closed
South Glazing Window	[1] Exist	ing Wall	South	None		0.00					6.05	
14.0 Conservatory 15.0 Draught Proofing 16.0 Draught Lobby		None 100 No										
17.0 Thermal Bridging Y-value		Default 0.150										
Description 18.0 Pressure Testing Designed q50 Property Tested ?		Yes 11.00										

As Built q50

As Built q50			
Same As Designed ?			
19.0 Mechanical Ventilation			
Mechanical Ventilation System	Yes		
Present			
Approved Installation	Yes		
Windows open in hot weather	Windows f	ully open	n
Cross ventilation possible	No		
Night Ventilation	Yes		
Air change rate	4.00		
Mechanical Ventilation data Type	Data Shee	t	
Туре	Balanced r	nechanic	ical ventilation with heat recovery
MV Reference Number			
Configuration			
MVHR Duct Insulated	Yes		
Manufacturer SFP	0.80		
Duct Type	Semi rigid		
MVHR Efficiency	90.00		
Wet Rooms	2		
Brand, Model	TBC		
20.0 Fans, Open Fireplaces, Flues			
Μ	HS SHS	Other	· Total
Number of Chimneys	0	0	0
Number of open flues	0	0	0
Number of intermittent fans		-	0
			-
Number of passive vents			0
Number of flueless gas fires			0
21.0 Cooling System	No		
22.0 Lighting			
Internal			
Total number of light fittings	7		
Total number of L.E.L. fittings	7		
Percentage of L.E.L. fittings	100.00		
External			
External lights fitted	No		
Light and motion sensors			
23.0 Electricity Tariff	Standard		
24.0 Heating Systems			
Main Heating 1	Manufactu	rer	
Description	Gas Fired	Boiler	
Percentage of Heat	100 %		
Main Heating 2	None		
Description			
Percentage of Heat	%		
Community Heating	None		
Secondary Heating	None		
Water Heating	Main Heati	ng 1	
Flue Gas Heat Recovery System	No		
Waste Water Heat Recovery Instantaneous System 1	No		
Waste Water Heat Recovery	No		
	INU		
Instantaneous System 2 Waste Water Heat Recovery Storage	No		
System			
Solar Panel	No		
25.0 Main Heating 1			
Database Ref. No.			
Fuel Type			
Main Heating	BGB		
TestMethod			
SAP Code	102		
Efficiency (Manufacturer) %	91.0		
Efficiency (Manufacturer) %	-		
In Winter			
In Summer			
Model Name	TBC		
Manufacturer	TBC		

TBC

Yes 2106

HETAS approved System

Manufacturer

Delayed Start Stat

Controls PCDF Controls

Sap Code

Page	3 of 4
------	--------

Oil Pump Inside	
FI Case	
FI Water	Nexe ex Helmeum
Flue Type	None or Unknown
Smoke Control Area Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	radiators
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
Combi store type	
27.0 Community Heating	
Space Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Controls	
SAP Code	
Water Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Charging Linked To Heat Use	
28.0 Secondary Heating	
Description	
SHS efficiency % SAP Code	
HETAS Approved System	
Smoke Control Area	
Test Method	
Manufacturer	
Model Name	
29.0 Water Heating	HWP From main heating 1
Water use <= 125 litres/person/day	Yes
SAP Code	901
Immersion Heater	
Summer Immersion	
Suplementary Immersion	
Immersion Only Heating Hot Water	
29.1 Flue Gas Heat Recovery System	
Database ID	
Brand Model	
Details	
29.2 Waste Water Heat Recovery	
System	
Total rooms with shower and/or bath	Hat Milatan O. Partan
30.0 Hot Water Cylinder	Hot Water Cylinder
Cylinder Stat Cylinder In Heated Space	Yes
Independent Time Control	Yes
Insulation Type	Foam
Insulation Thickness	
Cylinder Volume	150.00
Loss (kwh/day)	
Pipes insulation	Fully insulated primary pipework
In Airing Cupboard	
31.0 Solar Panel	
Solar Panel Area	
Area Type	
Panel Type	
n0, a1, a2, A/G ratio	
Orientation	
Elevation	
Overshading	
Solar Storage Volume	
Pump electrically powered Combined Cylinder	
	Nana
32.0 Thermal Store Thermal Store Pipework	None
33.0 Photovoltaic Unit	One Dwelling
Apportioned KWh/Year	

Page 4 of 4

PV Cells kW Peak	Orientation	Elevation	Overshading			
0.16	South	30°	None Or Little			
	34.0 Wind Turbines					
Terrain Type		Urba	an			
Wind Turbines Count						
Apportioned Ky	wh/year					
Rotor Diamete	r					
Hub Height	h la .					
35.0 Small-scale H Electricity Gen						
Description	ciulou					
Apportioned k	Vh/Year					
Recommendations	3					
None						

Further measures to achieve even higher standards

None



Summary Information

	ary mornau			
Property Reference:Apartment 5Issued on Date: 14.Oct.Survey Reference:Be Green AssessmentProp Type Ref: FlatProperty:Britannia Street, Kings Cross, London, WC1X 9EJProp Type Ref: Flat				
		TER: 18.27 TFEE:46.28	Percentage DER	
•		redits: N/A ENE		fSH Level: N/A
			Surveyor ID): Admin
				ed
OR New Build (As De	esigned)			Page 1 of 4
West Flat, End-Terrace 1 2014 2 Average or unknown	n			
oss Perimeter	Internal Floor Area	Average Store	/ Height	
	00.11	0.20		
	High			
Construction	-	U-Value	Kappa Gross A	rea Nett Area
Other		0.20	63.68	3 48.23
Construction		Kappa	Area	
Concrete floor slab,	carpeted		59.47	
Construction		Карра	Area	
Concrete floor slab,	carpeted		59.47	
Glazing G	lazing Gap Argon Filled	Solar Trans	Frame Type Frame	Factor U value
Double Low-E Soft 0.05		0.63	0.	.70 1.40
	,	Quarter and Milate		Quataia
on Orientation	Curtain Type	e e	Width Height Count	Area Curtain Closed
ernal Wall South	None	0.00		5.82
ernal Wall East	None	0.00		2.21
ernal Wall North East	None	0.00		7.42
None 100 No				
Default 0.150				
Yes 11.00				
	A construction Construction	Pent 5 en Assessment ss, London, WC1X 9EJ year): 1.01 DER: 22.37 Fail ents Compliance: Fail DFEE:57.67 Fail ENE1 Credits: N/AENE2 Credited), Tel: 4, Fax: s@l.f Systems SAP2012 Calculator (Design Sion: England (Part L1A 2013), Calculation DR New Build (As Designed) West Flat, End-Terrace 1 2014 2 Average or unknown Dess Perimeter Internal Floor Area 19.90 59.47 33.12 Simple calculation - High Construction Other Construction Concrete floor slab, carpeted Glazing Glazing Gazing Gap Argon Filled Double Low-E Soft 0.05 on Orientation Orientation Curtain Type ernal Wall South None None 100 No Default 0.150 Yes Yes	hent 5 en Assessment ss, London, WC1X 9EJ year): 1.01 DER: 22.37 Fail TER: 18.27 ents Compliance: Fail DFEE:57.67 Fail TFEE:46.28 ENE1 Credits: N/AENE2 Credits: N/A ENE Credited), Tel: 4, Fax: s@I.f Systems SAP2012 Calculator (Design System) version ion: England (Part L1A 2013), Calculation Type: New D DR New Build (As Designed) West Flat, End-Terrace 1 2014 2 Average or unknown West Flat, End-Terrace 1 3.01 Simple calculation - High Construction U-Value Other 0.20 Construction Kappa Concrete floor slab, carpeted Glazing Glazing Glazing Glazing Gap Argon Filled Solar Trans Double Low-E Soft 0.05 0 None 100 No Default 0.150 Yes	hent 5 en Assessment ss, London, WC1X 9EJ year): 1.01 DER: 22.37 Fail TER: 18.27 Percentage DER ents Compliance: Fail DFEE:57.67 Fail TFEE:46.28 Percentage DER ENE1 Credits: N/A ENE2 Credits: N/A ENE7 Credits: N/A C Credited), Tel: 4, Fax: s@l.f Surveyor ID Systems SAP2012 Calculator (Design System) version 2.01/06 ion: England (Part L1A 2013), Calculation Type: New Dwelling As Designed DR New Build (As Designed) West Flat, End-Terrace 1 2014 2 Average or unknown bas Perimeter Internal Floor Area Average Storey Height 19.90 59.47 3.20 33.12 Simple calculation - High Construction U-Value Kappa Gross A Other 0.20 63.68 Construction Kappa Area Concrete floor slab, carpeted 59.47 Construction Kappa Area Concrete floor slab, carpeted 59.47 Glazing Glazing Gap Argon Filled Solar Trans Frame Type Frame Double Low-E Soft 0.63 0 on Orientation Curtain Type 0.00 ernal Wall South None 0.00 ernal Wall South None 0.00 ernal Wall South None 0.00 None 100 No Default 0.150

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Page 2	2 of 4
--------	--------

19.0 Mechanical Ventilation Mechanical Ventilation System	
	Yes
Present Approved Installation Windows open in hot weather	Yes Windows fully open
Cross ventilation possible	Yes
Night Ventilation Air change rate	Yes 6.00
Mechanical Ventilation data Type	Data Sheet
Туре	Balanced mechanical ventilation with heat recovery
MV Reference Number Configuration	
MVHR Duct Insulated	Yes
Manufacturer SFP	0.80
Duct Type MVHR Efficiency	Semi rigid 90.00
Wet Rooms	2
Brand, Model	TBC
20.0 Fans, Open Fireplaces, Flues	MHS SHS Other Total
Number of Chimneys	
Number of open flues	0 0 0
Number of intermittent fans	0
Number of passive vents	0
Number of flueless gas fires	0
21.0 Cooling System	No
22.0 Lighting Internal	
Total number of light fittings	6
Total number of L.E.L. fittings Percentage of L.E.L. fittings	6 100.00
External	100.00
External lights fitted	No
Light and motion sensors 23.0 Electricity Tariff	10 Hour Off Peak
24.0 Heating Systems	
Main Heating 1	Manufacturer
Description	Gas Fired Boiler 100 %
Percentage of Heat Main Heating 2 Description	None
Percentage of Heat	%
Community Heating	None
Secondary Heating Water Heating	None Main Heating 1
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery	No
Instantaneous System 1 Waste Water Heat Recovery	No
Instantaneous System 2 Waste Water Heat Recovery Stora	aae No
System	
Solar Panel	No
25.0 Main Heating 1 Database Ref. No.	
Fuel Type Main Heating TastMathad	BGB
TestMethod SAP Code	102
Efficiency (Sedbuk 2009) %	91.0
Efficiency (Sedbuk 2009) % In Winter	
In Summer Model Name	TBC
Manufacturer	TBC
Controls	CBE Programmer, room thermostat and TRVs
PCDF Controls Delayed Start Stat	0 Yes
Sap Code	2106
Burner Control	On/Off
Boiler Compensator HETAS approved System Oil Rump Inside	

Flue Type	None or Unknown
Flue Type	
Smoke Control Area	No.
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
Combi store type	
27.0 Community Heating	
Space Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Controls	
SAP Code	
Water Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Charging Linked To Heat Use	
28.0 Secondary Heating	
Description	
SHS efficiency %	
SAP Code	
HETAS Approved System	
Smoke Control Area	
Test Method	
Manufacturer	
Model Name	
29.0 Water Heating	HWP From main heating 1
	Yes
Water use <= 125 litres/person/day SAP Code	901
	901
Immersion Heater	
Summer Immersion	
Suplementary Immersion	
Immersion Only Heating Hot Water	
29.1 Flue Gas Heat Recovery System	
Database ID	
Brand Model	
Details	
29.2 Waste Water Heat Recovery	
System	
Total rooms with shower and/or bath	
30.0 Hot Water Cylinder	Hot Water Cylinder
Cylinder Stat	Yes
Cylinder In Heated Space	Yes
Independent Time Control	Yes
Insulation Type	Foam
Insulation Thickness	
Cylinder Volume	150.00
Loss (kwh/day)	
Pipes insulation	Fully insulated primary pipework
In Airing Cupboard	r any monator primary pipement
31.0 Solar Panel	
Solar Panel Area	
Area Type	
Panel Type	
n0, a1, a2, A/G ratio	
Orientation	
Elevation	
Overshading	
Solar Storage Volume	
Pump electrically powered	
Combined Cylinder	
32.0 Thermal Store	None
Thermal Store Pipework	
33.0 Photovoltaic Unit	One Dwelling
Apportioned KWh/Year	

Page 4 of 4

PV Cells kW Peak	Orientation	Elevation	Overshading			
0.16	South	30°	None Or Little			
	34.0 Wind Turbines					
Terrain Type		Urba	an			
Wind Turbines Count						
Apportioned Ky	wh/year					
Rotor Diamete	r					
Hub Height	h la .					
35.0 Small-scale H Electricity Gen						
Description	ciulou					
Apportioned k	Vh/Year					
Recommendations	3					
None						

Further measures to achieve even higher standards

None

Glazing



	Sumn	nary Informat	ion					
Property Reference: Apai Survey Reference: Be G Property: Britannia Street, Kings (Issued on Date: 14.Oct.2014 Prop Type Ref: Flat					
SAP Rating: 84 B CO2 Emissions Environmental:86 B General Requir			TER: 12.79 TFEE:29.13		age DER <ter age DFEE<tf< th=""><th></th></tf<></ter 			
CfSH Results Version:	•	1 Credits: N/A ENE2 (Credits: N/A ENE	7 Credits:	N/A CfSH I	evel: N/A		
Surveyor: admin Admin (Un Address: Client:	accredited), Tel: 4, Fa	ax: s@l.f		Su	rveyor ID: A	dmin		
Software Version: Elmhurst Ene SAP version: SAP 2012, Regs R					Designed			
SUMMARY FOR INPUT DATA	FOR New Build (As I	Designed)			Р	age 1 of 4		
Orientation 1.0 Property Type 2.0 Number of Storeys 3.0 Date Built 3.0 Property Age Band 4.0 Sheltered Sides 5.0 Sunlight/Shade	North Flat, Mid-Terrace 1 2014 3 Average or unknow	vn						
6.0 Measurements								
Hea	at Loss Perimeter	Internal Floor Area	Average Storey	Height				
Ground Floor:	22.55	91.88	2.45					
7.0 Living Area	36.54							
3.0 Thermal Mass Parameter	Simple calculation	- High						
9.0 External Walls Description	Construction		U-Value	Карра	Gross Area	Nett Area		
External Wall	Other		0.20		24.67	7.39		
New Extension Wall	Other		0.25		30.58	30.58		
9.1 Party walls Description	Construction		Kappa	Ar	ea			
Existing Party Wall	Other			45.94				
10.0 External Roofs				-	-			
Description	Construction		U-Value	Карра	Gross Area	Nett Area		
External Roof	Other		0.16		36.54	36.54		
10.1 Party Ceilings Description	Construction		Kappa	Ar	ea			
Existing Party Ceilings	Concrete floor slat	o, carpeted		55	.34			
11.1 Party Floors Description	Construction		Kappa	Ar	ea			
Existing Party Floor	Concrete floor slat	o, carpeted		91	.88			
12.0 Opening Types Description Data Source Type	Glazing	Glazing Gap Argon Fille	d Solar Trans F	Frame Type	Frame Facto	or U value		
New Glazing Manufacturer Window	Double Low-E Soft 0.05		0.63		0.70	1.40		
Double Glazing Manufacturer Window	Double Low-E Soft 0.05		0.63		0.70	1.40		
13.0 Openings	Double Low-E Soft 0.05	n Curtain Type	0.63 Overhang Wide Ratio Overhang	Width Hei	0.70 ght Count Are	C		

South New [1] External Wall Window South 0.00 12.10 None

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Eviatia a						
Existing	Window	[1] External Wall	South	None	0.00	5.18
Glazing						
14.0 Conse	natony	None				
15.0 Draug		100				
16.0 Draug		No				
-		Default				
17.0 Therm Y-value		0.150				
Descrip		0.150				
18.0 Press		No				
Design	U U	15.00				
	y Tested ?					
As Buil						
	As Designed ?					
	anical Ventilation					
Mechar	nical Ventilation Syster	n Yes				
Present	,					
Approv	ed Installation	Yes				
Windov	vs open in hot weather	· Window	vs fully ope	n		
	entilation possible	No				
	entilation	Yes				
	nge rate	4.00				
	nical Ventilation data T				ferrar 10 have the second	
Type MV Rot	foronco Number	Balanc	ea mechani	icai ventilat	ion with heat recovery	
MV Rei Configu	ference Number					
-	Duct Insulated	Yes				
	cturer SFP	0.80				
Duct Ty		Semi ri	aid			
	Efficiency	90.00	9			
Wet Ro	•	3				
Brand,	Model	TBC				
20.0 Fans,	Open Fireplaces, Flue					
		MHS SH	IS Other	Total		
Number of	Chimneys	0	0	0		
Number of	open flues	0	0	0		
Number of	intermittent fans			0		
	passive vents			0		
Number of	flueless gas fires			0		
21.0 Coolir	ng System	No				
22.0 Lightir	ng					
Interna	l					
	al number of light fitting					
	al number of L.E.L. fitti					
	centage of L.E.L. fitting	gs 100.00				
Externa		N.				
	ernal lights fitted	No				
23.0 Electr	nt and motion sensors	Standa	rd			
		Stanua	10			
24.0 Heatir Main H	eating 1	Manufa	octurer			
	scription		red Boilers			
	centage of Heat	100 %	24 201013			
	eating 2	None				
Des	scription					
	centage of Heat	%				
Commu	unity Heating	None				
	lary Heating	None				
Water I			eating 1			
	as Heat Recovery Syst					
	Water Heat Recovery	No				
	ous System 1					
	Water Heat Recovery	No				
	ous System 2 Water Heat Recovery	Storage No				
System	Tator real Necovery	clorage NU				
Solar P	anel	No				
25.0 Main I						
	se Ref. No.					
Fuel Ty						
Main H		BGB				
TestMe	thod					
SAP Co	ode	102				

Page 2 of 4

5-1	
Efficiency(Sedbuk 2009)% Efficiency(Sedbuk 2009)%	91.0
In Winter	
In Summer	
Model Name	TBC
Manufacturer	TBC
Controls	CBE Programmer, room thermostat and TRVs
PCDF Controls	0
Delayed Start Stat Sap Code	Yes 2106
Burner Control	On/Off
Boiler Compensator	
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	Alexan en Halannese
Flue Type Smoke Control Area	None or Unknown
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature Combi boiler type	
Combi keep hot type	
Combi store type	
27.0 Community Heating	
Space Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value Controls	
SAP Code	
Water Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Charging Linked To Heat Use	
28.0 Secondary Heating Description	
SHS efficiency %	
SAP Code	
HETAS Approved System	
Smoke Control Area	
Test Method	
Manufacturer Model Name	
29.0 Water Heating	HWP From main heating 1
Water use <= 125 litres/person/day	Yes
SAP Code	901
Immersion Heater	
Summer Immersion	
Suplementary Immersion	
Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System	
Database ID	
Brand Model	
Details	
29.2 Waste Water Heat Recovery	
System	
Total rooms with shower and/or bath 30.0 Hot Water Cylinder	Hot Water Cylinder
Cylinder Stat	Yes
Cylinder In Heated Space	Yes
Independent Time Control	Yes
Insulation Type	Foam
Insulation Thickness	150.00
Cylinder Volume Loss (kwh/day)	150.00
Pipes insulation	Fully insulated primary pipework
In Airing Cupboard	· · · · · ·
31.0 Solar Panel	
Solar Panel Area	
Area Type Panel Type	

n0, a1, a2, A/G Orientation Elevation Overshading Solar Storage Pump electrica Combined Cyli	Volume ally powered			
32.0 Thermal Store Thermal Store	-	Noi	None	
33.0 Photovoltaic L Apportioned KV	Unit	On	e Dwelling	
PV Cells kW Peak		Elevation	Overshading	
0.16	South	30°	None Or Little	
34.0 Wind Turbine Terrain Type Wind Turbines		Urb	ban	
Count				
Apportioned Ky Rotor Diameter				
Hub Height	hidro			
35.0 Small-scale H Electricity Gen				
Description				
	3			
Apportioned kV Recommendations None	5	en higher		

standards None



Summary Information

Property Reference: Apartment 7 Survey Reference: Be Green Assessment

Issued on Date: 14.Oct.2014 Prop Type Ref: Flat

Page 1 of 4

Property: Britannia Street, Kings Cross, London, WC1X 9EJ

0	84 B CO2 Emissions (t/yea 88 B General Requirements	,		18.14 Fail 41.74 Fail		15.52 :32.44		Percent Percent	•			6.85 % 8.65 %
CfSH Results	Version:	ENE1	Credits:	N/AENE2	Credits:	N/A E	ENE7 C	Credits:	N/A	CfSH	Level:	N/A
Surveyor: Address: Client:	admin Admin (Unaccre	dited), Tel: 4, Fax	∷ s@l.f					Su	rveyor	ID:	Admin	
Software Ver	Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 2.01r06											

SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

				<u> </u>							i uge	91014
Orientation		Mart										
Orientation		West	Torraga									
1.0 Property Type 2.0 Number of Storeys		Flat, End	- renace									
3.0 Date Built		2014										
3.0 Property Age Band		2014										
4.0 Sheltered Sides		2										
5.0 Sunlight/Shade			or unknow	n								
6.0 Measurements												
	Heat Los	s Perimeter	r	Internal Floo	r Area	Aver	age Storey	Height				
Ground Floo	r: 19	9.87		61.94			2.45					
7.0 Living Area		33.20										
8.0 Thermal Mass Paramet	er	Simple c	alculation -	High								
9.0 External Walls												
Description		Construc	tion			U-Va	lue l	Kappa	Gro	oss Area	N	ett Area
New External Wall		Other				0.2	0			48.68		37.24
9.1 Party walls												
Description		Construc	tion				Kappa		Area			
Party Wall 1		Other							33.40			
10.1 Party Ceilings												
Description		Construc	tion				Kappa		Area			
Existing Party Ceilings		Concrete	e floor slab,	carpeted					61.94			
11.1 Party Floors												
Description		Construc	tion				Карра		Area			
Existing Party Floor		Concrete	e floor slab,	carpeted					61.94			
12.0 Opening Types	Turne	Olasiaa			A	01	T F	т		-		
Description Data Source	Туре	Glazing	G	Blazing Gap	Argon Filled	Sola	ar Trans F	rame Ty	/pe i	Frame Fa	ctor L	value
New Glazing Manufacturer	Window	Double Lo 0.05	ow-E Soft				0.63			0.70	1	.40
13.0 Openings												
Name Opening Type	Location		Orientation	Curtain Typ	е	Overhang Ratio	Wide Overhang	Width	Height (Count A	rea	Curtain Closed
South Glazing Window	[1] New I Wall	External	South	None		0.00				3	.42	
East Glazing Window	[1] New I Wall	External	East	None		0.00				1	.60	
North East Glazing Window	[1] New I Wall	External	North East	None		0.00				6	.42	
14.0 Conservatory 15.0 Draught Proofing 16.0 Draught Lobby		None 100 No										

17.0 Thermal Bridging

Default

SUMMARY FOR INPUT DATA FO	OR New Bui	ld (As D	esigned)			Page 2 of 4
Y-value	0.150					
Description						
18.0 Pressure Testing	Yes					
Designed q50 Property Tested ?	11.00					
As Built q50						
Same As Designed ?						
19.0 Mechanical Ventilation						
Mechanical Ventilation System	Yes					
Present Approved Installation	Yes					
Windows open in hot weather	Windows f	ully open				
Cross ventilation possible	Yes	<i>y</i> 1				
Night Ventilation	Yes					
Air change rate Mechanical Ventilation data Type	6.00 Data Shee	.+				
Type			al ventilati	ion with heat recov	verv	
MV Reference Number	Dalanood				,	
Configuration						
MVHR Duct Insulated	Yes					
Manufacturer SFP Duct Type	0.80 Semi rigid					
MVHR Efficiency	90.00					
Wet Rooms	2					
Brand, Model	TBC					
20.0 Fans, Open Fireplaces, Flues	INS SHS	Other	Total			
Number of Chimneys	0	Other 0	l otal 0			
-			-			
Number of open flues	0	0	0			
Number of intermittent fans			0			
Number of passive vents			0			
Number of flueless gas fires			0			
21.0 Cooling System	No					
22.0 Lighting						
Internal Total number of light fittings	10					
Total number of L.E.L. fittings	10					
Percentage of L.E.L. fittings	100.00					
External						
External lights fitted Light and motion sensors	No					
23.0 Electricity Tariff	Standard					
24.0 Heating Systems	etandara					
Main Heating 1	Manufactu	rer				
Description	Gas Fired	Boiler				
Percentage of Heat Main Heating 2	100 % None					
Description	None					
Percentage of Heat	%					
Community Heating	None					
Secondary Heating	None Main Heat	ing 1				
Water Heating Flue Gas Heat Recovery System	Main Heat No	ing i				
Waste Water Heat Recovery	No					
Instantaneous System 1						
Waste Water Heat Recovery	No					
Instantaneous System 2 Waste Water Heat Recovery Storag						
System						
Solar Panel	No					
25.0 Main Heating 1		-				
Database Ref. No.						
Fuel Type Main Heating	BGB					
Main Heating TestMethod	000					
SAP Code	102					
Efficiency (Sedbuk 2009) %	91.0					
Efficiency (Sedbuk 2009) %						
In Winter In Summer						
Model Name	TBC					
Manufacturer	TBC					
Controls		rammer, r	oom therr	nostat and TRVs		
PCDF Controls	0					

Dolovod Start Stat	Yes
Delayed Start Stat	
Sap Code	2106
Burner Control	On/Off
Boiler Compensator	
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	
Flue Type	None or Unknown
Smoke Control Area	
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
Combi store type	
27.0 Community Heating	
Space Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Controls	
SAP Code	
Water Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Charging Linked To Heat Use	
28.0 Secondary Heating	
Description	
SHS efficiency %	
SAP Code	
HETAS Approved System	
Smoke Control Area	
Test Method	
Manufacturer	
Model Name	
	HWP From main heating 1
Model Name 29.0 Water Heating	HWP From main heating 1 Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code	
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath	Yes 901
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder	Yes 901 Hot Water Cylinder
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat	Yes 901 Hot Water Cylinder Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder In Heated Space Independent Time Control Insulation Type Insulation Type Insulation Thickness Cylinder Volume Loss (kwh/day)	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder In Heated Space Independent Time Control Insulation Type Insulation Thickness Cylinder Volume Loss (kwh/day) Pipes insulation In Airing Cupboard	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder In Heated Space Independent Time Control Insulation Type Insulation Thickness Cylinder Volume Loss (kwh/day) Pipes insulation In Airing Cupboard	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00

รเ

SUMMARY FOR INPUT DATA FOR New Build (As Desig	gned) Page 4 of
Thermal Store Pipework 33.0 Photovoltaic Unit One Dwelling	
Apportioned KWh/Year	
PV Cells kW Peak Orientation Elevation Overshading	
0.16 South 30° None Or Little	
34.0 Wind Turbines	
Terrain Type Urban	
Wind Turbines	
Apportioned Kwh/year Rotor Diameter	
Hub Height	
35.0 Small-scale Hydro	
Electricity Generated	
Description	
Apportioned kWh/Year	

Recommendations

None

Further measures to achieve even higher standards

None



Summary Information

Property Reference: Apartment 8 Survey Reference: Be Green Assessment

Issued on Date: 14.Oct.2014 Prop Type Ref: Flat

Page 1 of 4

Property: Britannia Street, Kings Cross, London, WC1X 9EJ

	80 C CO2 Emissions (t/year): 80 C General Requirements Co	1.74 mpliance: Fail	DER: 23.34 Fail DFEE:66.78 Fail		16.78 :48.92	•	DER <ter: DFEE<tfe< th=""><th></th></tfe<></ter: 	
CfSH Results	Version:	ENE1	Credits: N/AENE2	2 Credits:	N/A ENE	7 Credits: N/	A CfSH Lev	vel: N/A
Surveyor: Address: Client:	admin Admin (Unaccredited	l), Tel: 4, Fax	:: s@l.f			Survey	/or ID: Ad	min

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 2.01r06 SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

					····J····,							age i ol 4
			N									
Orientation 1.0 Property	Tuno		North	d-Terrace								
2.0 Number			Tiat, ⊑⊓ 1	u-renace								
3.0 Date Bui			2014									
3.0 Property			2014									
4.0 Sheltere			1									
5.0 Sunlight/				or unknow	n							
6.0 Measure												
		Heat Los	s Perimete	er	Internal Floor A	rea	Avera	age Storey	Height			
	Ground Floo	or: 2	1.91		101.95			3.00				
7.0 Living Ar	ea		39.30									
8.0 Thermal	Mass Paramet	ter	Simple of	calculation -	High							
9.0 External	Walls				-							
Description			Constru	ction			U-Val	ue	Kappa	Gross	Area	Nett Area
New Externa	al Wall		Other				0.20)		65.	73	54.75
9.1 Party wa	lls											
Description			Constru	ction				Kappa		Area		
Existing Party Wall			Other						:	23.34		
10.0 Externa	al Roofs											
Description			Constru	ction			U-Val	ue	Kappa	Gross	Area	Nett Area
Existing Exte	ernal Roof		Other				0.16	6		101	.95	101.95
11.1 Party F	loors											
Description			Construction Kappa Area									
Existing Part	ty Floor		Concret	e floor slab,	carpeted		101.95					
12.0 Openin		T	Olasiaa				0-1-	- T F	т			
Description	Data Source	Туре	Glazing	G	Blazing Gap Arg	jon Filled	Sola	r Trans F	rame Typ	pe Fra	ne Facto	r U value
New Glazing	Manufacturer	Window	Double L 0.05	ow-E Soft			C).63			0.70	1.40
13.0 Openin	<u></u>											
Name	Opening Type	Location	1	Orientation	Curtain Type	(Overhang Ratio	Wide Overhang	Width H	Height Cou	nt Are	a Curtain Closed
North East	Window	[1] New Wall	External	North East	None		0.00				4.3	2
East	Window	[1] New	External	East	None		0.00				1.2	6
South	Window	Wall [1] New	External	South	None		0.00				5.4	
Coun	******	Wall		Coun	1,0110		0.00				0.4	
14.0 Conser	vatory		None									
15.0 Draugh			100									
16.0 Draugh			No									
			-									

17.0 Thermal Bridging

Default

SUMMARY FOR INPUT DATA F	OR New Build (As Designed)	Page 2 of 4
Y-value	0.150	
Description		
18.0 Pressure Testing	Yes	
Designed q50 Property Tested ?	11.00	
As Built q50		
Same As Designed ?		
19.0 Mechanical Ventilation		
Mechanical Ventilation System	Yes	
Present Approved Installation	Yes	
Windows open in hot weather	Windows fully open	
Cross ventilation possible	Yes	
Night Ventilation	Yes	
Air change rate Mechanical Ventilation data Type	6.00 Data Sheet	
Type	Balanced mechanical ventilation with heat recovery	
MV Reference Number		
Configuration		
MVHR Duct Insulated Manufacturer SFP	Yes 0.80	
Duct Type	Semi rigid	
MVHR Efficiency	90.00	
Wet Rooms	3	
Brand, Model	TBC	
20.0 Fans, Open Fireplaces, Flues	MHS SHS Other Total	
Number of Chimneys		
Number of open flues	0 0 0	
Number of intermittent fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
-		
21.0 Cooling System	No	
22.0 Lighting Internal		
Total number of light fittings	12	
Total number of L.E.L. fittings	12	
Percentage of L.E.L. fittings	100.00	
External External lights fitted	No	
Light and motion sensors		
23.0 Electricity Tariff	Standard	
24.0 Heating Systems		
Main Heating 1 Description	Manufacturer Gas Fired Boiler	
Percentage of Heat	100 %	
Main Heating 2	None	
Description		
Percentage of Heat Community Heating	% None	
Secondary Heating	None	
Water Heating	Main Heating 1	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery	No	
Instantaneous System 1 Waste Water Heat Recovery	No	
Instantaneous System 2		
Waste Water Heat Recovery Storage	ge No	
System	No	
Solar Panel 25.0 Main Heating 1		
Database Ref. No.		
Fuel Type		
Main Heating	BGB	
TestMethod SAP Code	102	
SAP Code Efficiency (Sedbuk 2009) %	91.0	
Efficiency (Sedbuk 2009) %		
In Winter		
In Summer	TRC	
Model Name Manufacturer	TBC TBC	
Controls	CBE Programmer, room thermostat and TRVs	
PCDF Controls	0	

Dolaved Start Stat	Yes
Delayed Start Stat	
Sap Code	2106
Burner Control	On/Off
Boiler Compensator	
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	
Flue Type	None or Unknown
Smoke Control Area	
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
Combi store type	
27.0 Community Heating	
Space Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Controls	
SAP Code	
Water Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Charging Linked To Heat Use	
28.0 Secondary Heating	
Description	
SHS efficiency %	
SAP Code	
HETAS Approved System	
Smoke Control Area	
Test Method	
Manufacturer	
Manufacturer Model Name	
	HWP From main heating 1
Model Name 29.0 Water Heating	
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code	
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System	Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath	Yes 901
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder	Yes 901 Hot Water Cylinder
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat	Yes 901 Hot Water Cylinder Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat Cylinder In Heated Space	Yes 901 Hot Water Cylinder
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat	Yes 901 Hot Water Cylinder Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat Cylinder In Heated Space	Yes 901 Hot Water Cylinder Yes Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat Cylinder In Heated Space Independent Time Control Insulation Type	Yes 901 Hot Water Cylinder Yes Yes Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder In Heated Space Independent Time Control Insulation Type Insulation Thickness	Yes 901 Hot Water Cylinder Yes Yes Foam
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Yes
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat Cylinder In Heated Space Independent Time Control Insulation Type Insulation Type Insulation Thickness Cylinder Volume Loss (kwh/day)	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder Stat Cylinder In Heated Space Independent Time Control Insulation Type Insulation Type Insulation Thickness Cylinder Volume Loss (kwh/day)	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day SAP Code Immersion Heater Summer Immersion Suplementary Immersion Immersion Only Heating Hot Water 29.1 Flue Gas Heat Recovery System Database ID Brand Model Details 29.2 Waste Water Heat Recovery System Total rooms with shower and/or bath 30.0 Hot Water Cylinder Cylinder In Heated Space Independent Time Control Insulation Type Insulation Thickness Cylinder Volume Loss (kwh/day) Pipes insulation In Airing Cupboard	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00
Model Name 29.0 Water Heating Water use <= 125 litres/person/day	Yes 901 Hot Water Cylinder Yes Yes Foam 150.00

รเ

SUMMAR	SUMMARY FOR INPUT DATA FOR New Build (As Designed)			Page 4 of
	Store Pipework		Dwelling	
33.0 Photovoltaic Unit Apportioned KWh/Year		One Dwelling		
	Peak Orientation	Elevation	Overshading	
0.16	South	30°	None Or Little	
34.0 Wind Tu	rbines			
Terrain T	, , , , , , , , , , , , , , , , , , ,	Urt	an	
Wind Turl	bines			
Count	ad Kuch/uppr			
Rotor Dia	ed Kwh/year			
Hub Heig				
35.0 Small-so				
	Generated			
Descriptio				
	ed kWh/Year			

Recommendations

None

Further measures to achieve even higher standards

None