#### PREDICTED ENERGY ASSESSMENT



3 bed, Dwelling type: House, End-Terrace

2 bath Date of assessment: 30/05/2019

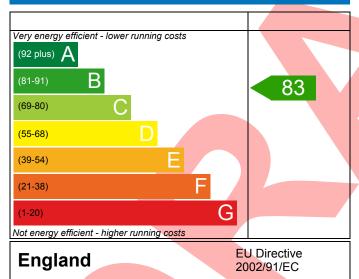
Produced by: Michael Brogden

Total floor area: 76.86 m<sup>2</sup>

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

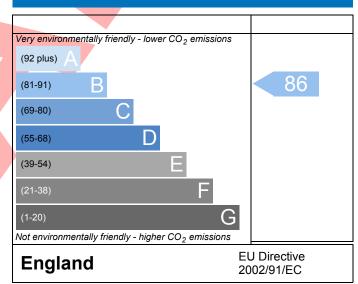
The energy performance has been assessed using the Government approved SAP2012 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO<sub>2</sub>) emissions.

### **Energy Efficiency Rating**



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

#### **Environmental Impact (CO<sub>2</sub>) Rating**



The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO<sub>2</sub>) emissions. The higher the rating the less impact it has on the environment.

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.



### **BUILDING REGULATION COMPLIANCE Calculation Type: New Build (As Designed)**



Reference Property  3 bed, 2 bath  SAP Rating  83 B DER 18.40 TER 19.08  Environmental 86 B % DER <ter %="" (as="" (der)="" (mains="" (t="" (ter)="" 0333="" 1="" 1.00="" 1.20="" 19.08="" 3.54="" 48.69="" 52.65="" 577,="" 5777="" 7.53="" achieving="" and="" assessor="" at="" brogden,="" build="" carbon="" client="" co2="" compliance="" criterion="" data="" der="" designed)="" details="" dfee="" dfee<tfee="" dioxide="" dwelling="" emission="" emissions="" factor="" for="" fuel="" gas="" gas)="" general="" heating="" input="" kgco2="" main="" mains="" michael="" michael@darren-evans.co.uk="" mr.="" m²="" m²<="" new="" pass="" rate="" requirements="" ro34-0001="" target="" tel:="" ter="" tfee="" th="" the="" umary="" year)="" —=""><th>Property Reference</th><th>Plot 057 AS</th><th></th><th></th><th></th><th>Issued on Date</th><th>30/05/2019</th></ter>	Property Reference	Plot 057 AS				Issued on Date	30/05/2019
SAP Rating	Assessment	Plot 057 AS		Pro	op Type Ref	Type 51 Hipped 1FW	END
SAP Rating	Reference						
See	Property	3 bed, 2 bath					
1.20   DFEE   48.69   TFEE   52.65	SAP Rating		83 B		18.40	TER	19.08
Assessor Details  Mr. Michael Brogden, Michael Brogden, Tel: 0333 5777 577, michael@darren-evans.co.uk  Mr. Michael Brogden, Michael Brogden, Tel: 0333 5777 577, michael@darren-evans.co.uk  UMARY FOR INPUT DATA FOR New Build (As Designed)  Writerion 1 — Achieving the TER and TFEE rate  a TER and DER  Fuel for main heating Fuel factor Target Carbon Dioxide Emission Rate (TER) Dwelling Carbon Dioxide Emission Rate (DER)  Dwelling Carbon Dioxide Emission Rate (DER)  Dwelling Fabric Energy Efficiency (TFEE) Dwelling Fabric Energy Efficiency (DFEE)  Dwelling Fabric Energy Efficiency (DFEE)  Limits on design flexibility  Limiting Fabric Standards  2 Fabric U-values  Element  Average  Element  Average  Highest  External wall  0.27 (max. 0.39) 0.27 (max. 0.70) Pass  Floor 0.15 (max. 0.25) 0.15 (max. 0.70) Pass  Roof 0.10 (max. 0.25) 0.15 (max. 0.70) Pass  Aof 0.10 (max. 0.20) 1.50 (max. 0.35) Pass  2 Thermal bridging Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum  10.0  m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	Environmental		86 B	% DER <ter< td=""><td></td><td></td><td>_</td></ter<>			_
Assessor Details  Wr. Michael Brogden, Michael Brogden, Tel: 0333 5777 577, michael@darren-evans.co.uk  UMARY FOR INPUT DATA FOR New Build (As Designed)  riterion 1 — Achieving the TER and TFEE rate a TER and DER  Fuel for main heating Fuel factor Target Carbon Dioxide Emission Rate (TER) Dwelling Carbon Dioxide Emission Rate (DER) Dwelling Carbon Dioxide Emission Rate (DER) Dwelling Fabric Energy Efficiency (TFEE) Dwelling Fabric Energy Efficiency (DFEE) Dwelling Fabric Energy Efficiency (DFEE)  Limiting Fabric Standards  2 Fabric U-values Element Average Highest External wall 0.27 (max. 0.39) Parsy Pass Party wall 0.00 (max. 0.20) Pass Roof 0.10 (max. 0.25) 0.15 (max. 0.70) Pass Roof 0.10 (max. 0.20) 1.50 (max. 0.35) Pass Denings 1.39 (max. 2.00) 1.50 (max. 3.30) Pass  2 Thermal bridging Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction 3 Air permeability Air permeability at 50 pascals Maximum  [10.00]		•	1.20		48.69		52.65
Client  WMAY FOR INPUT DATA FOR New Build (As Designed)  Witterion 1 — Achieving the TER and TFEE rate  a TER and DER  Fuel for main heating Fuel factor Target Carbon Dioxide Emission Rate (TER) Dwelling Carbon Dioxide Emission Rate (DER)  b TFEE and DFEE  Target Fabric Energy Efficiency (TFEE) Dwelling Fabric Energy Efficiency (DFEE)  Lase Separation Standards  2 Fabric U-values  Element External wall  0.27 (max. 0.30) 0.27 (max. 0.70) Pass Party wall 0.00 (max. 0.20) 0.15 (max. 0.25) 0.15 (max. 0.70) Pass Openings 1,39 (max. 2.00) 1.50 (max. 3.30) Pass  2 Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability at 50 pascals Maximum  10.00  m³/(h.m²) @ 50 Pa Pass  Limiting System Efficiencies	General Requiremen	ts Compliance	Pass	% DFEE <tfee< th=""><th></th><th>7.53</th><th></th></tfee<>		7.53	
Citient  UMARY FOR INPUT DATA FOR New Build (As Designed)  Citerion 1 - Achieving the TER and TFEE rate  a TER and DER  Fuel for main heating Fuel factor  Target Carbon Dioxide Emission Rate (TER) Dwelling Carbon Dioxide Emission Rate (DER)  b TEEE and DEE  Target Fabric Energy Efficiency (TFEE) Dwelling Fabric Energy Efficiency (DFEE)  Limiting Fabric Standards  2 Fabric U-values  Element External wall O.27 (max. 0.30) Pass Party wall O.00 (max. 0.20) Pass Roof O.10 (max. 0.20) O.15 (max. 0.25) Openings 1.39 (max. 2.00) 1.50 (max. 3.30) Pass  2a Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability at 50 pascals Maximum  D.00 (max D.00) Maximum  D.				l: 0333 5777 <b>577</b> ,		Assessor ID	R034-0001
Triterion 1 — Achieving the TER and TFEE rate  Texa and DER  Fuel for main heating Fuel factor Target Carbon Dioxide Emission Rate (TER) Dwelling Carbon Dioxide Emission Rate (DER)  Dwelling Fabric Energy Efficiency (TFEE) Dwelling Fabric Energy Efficiency (DFEE)  As.69  Lwh/m²/yr  Au.0 (-7.6%)  Wwh/m²/yr  Awh/m²/yr  Pass  Criterion 2 — Limits on design flexibility  Limiting Fabric Standards  2 Fabric U-values  Element  Average  Highest  External wall  D 27 (max 0.30)  D 27 (max. 0.70)  Pass  Party wall  D 0.00 (max. 0.20)  D .15 (max. 0.70)  Pass  Roof  D 1.01 (max. 0.25)  D .15 (max. 0.35)  Pass  2 Thermal bridging  Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum  10.0  m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	Client						
Triterion 1 — Achieving the TER and TFEE rate  Texa and DER  Fuel for main heating Fuel factor Target Carbon Dioxide Emission Rate (TER) Dwelling Carbon Dioxide Emission Rate (DER)  Dwelling Fabric Energy Efficiency (TFEE) Dwelling Fabric Energy Efficiency (DFEE)  As.69  Lwh/m²/yr  Au.0 (-7.6%)  Wwh/m²/yr  Awh/m²/yr  Pass  Criterion 2 — Limits on design flexibility  Limiting Fabric Standards  2 Fabric U-values  Element  Average  Highest  External wall  D 27 (max 0.30)  D 27 (max. 0.70)  Pass  Party wall  D 0.00 (max. 0.20)  D .15 (max. 0.70)  Pass  Roof  D 1.01 (max. 0.25)  D .15 (max. 0.35)  Pass  2 Thermal bridging  Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum  10.0  m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	SUMARY FOR INPUT [	DATA FOR New Build (As	Designed)				
Fuel for main heating Fuel factor  Target Carbon Dioxide Emission Rate (TER)  Dwelling Carbon Dioxide Emission Rate (DER)  Dwelling Fabric Energy Efficiency (TFEE)  Dwelling Fabric Energy Efficiency (DFEE)  Dwelling Fabric Energy Efficiency (DFEE)  Dwelling Fabric Standards  ZFabric U-values  Element  Average  External wall  D.27 (max. 0.30)  Pass  Party wall  D.00 (max. 0.20)  Pass  Floor  D.15 (max. 0.25)  D.15 (max. 0.70)  Pass  Openings  1.39 (max. 0.20)  D.10 (max. 0.20)  D.10 (max. 0.35)  Denings  Lay (max. 0.30)  Dass  Pass  2a Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum  D.00 (max D.00 (max)  D.00 (max. 0.20)  D.10 (max. 0.35)  Dass		•					
Target Carbon Dioxide Emission Rate (TER)   19.08   kgCO2/m²   Pass	1a TER and DER	•					
Target Carbon Dioxide Emission Rate (TER)   19.08   kgCO2/m²   Pass	Fuel for main heat	ing	Mains ga	as			
18.40		0					
b TFEE and DFEE  Target Fabric Energy Efficiency (DFEE)  Dwelling Fabric Energy Efficiency (DFEE)  Limiting Fabric Standards  2 Fabric U-values  Element  External wall  Durity wall  Durit	Target Carbon Diox	xide Emission Rate (TER)				kgCO <sub>2</sub> /m <sup>2</sup>	
Triterion 2 — Limits on design flexibility  Limiting Fabric U-values  External wall  Description  External wall  Description  Description  Description  Description  External wall  Description  Descrip	_		R) 18.40				Pass
Target Fabric Energy Efficiency (TFEE) Dwelling Fabric Energy Efficiency (DFEE)  48.69  -4.0 (-7.6%)  Limiting Fabric Standards  2 Fabric U-values  Element Average Highest External wall 0.27 (max. 0.30) 0.27 (max. 0.70) Pass Party wall 0.00 (max. 0.20) - Pass Floor 0.15 (max. 0.25) 0.15 (max. 0.70) Pass Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass Openings 1,39 (max. 2.00) 1.50 (max. 3.30) Pass  2a Thermal bridging Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability Air permeability at 50 pascals Maximum  5.00 (design value)  m³/(h.m²) @ 50 Pa Pass Limiting System Efficiencies			-0.68 (-3	.6%)		kgCO <sub>2</sub> /m <sup>2</sup>	
Dwelling Fabric Energy Efficiency (DFEE)  48.69  kWh/m²/yr  kWh/m²/yr  Pass  Partiterion 2 – Limits on design flexibility  Limiting Fabric Standards  2 Fabric U-values  Element Average Highest  External wall 0.27 (max. 0.30) 0.27 (max. 0.70) Pass  Party wall 0.00 (max. 0.20) - Pass  Floor 0.15 (max. 0.25) 0.15 (max. 0.70) Pass  Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass  Openings 1.39 (max. 2.00) 1.50 (max. 3.30) Pass  2a Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum 10.0 m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	1b TFEE and DFEE						
### Average Highest  External wall 0.27 (max. 0.30) 0.27 (max. 0.70) Pass  Party wall 0.00 (max. 0.25) 0.15 (max. 0.30) Pass  Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass  Openings 1.39 (max. 2.00) 1.50 (max. 3.30) Pass  2a Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum 10.0 m³/(h.m²) @ 50 Pa  Pass  Pass  Limiting System Efficiencies	Target Fabric Energ	gy Efficiency (TFEE)	52.65			kWh/m²/yr	
Limiting Fabric Standards  2 Fabric U-values  Element Average Highest  External wall 0.27 (max. 0.30) 0.27 (max. 0.70) Pass Party wall 0.00 (max. 0.20) - Pass Floor 0.15 (max. 0.25) 0.15 (max. 0.70) Pass Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass Openings 1.39 (max. 2.00) 1.50 (max. 3.30) Pass  2 a Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability Air permeability at 50 pascals 5.00 (design value) m³/(h.m²) @ 50 Pa Maximum 10.0 m³/(h.m²) @ 50 Pa Pass Limiting System Efficiencies	Dwelling Fabric En	ergy Efficiency (DFEE)	48.69			kWh/m²/yr	
Limiting Fabric Standards  2 Fabric U-values  Element Average Highest  External wall 0.27 (max. 0.30) 0.27 (max. 0.70) Pass  Party wall 0.00 (max. 0.20) - Pass  Floor 0.15 (max. 0.25) 0.15 (max. 0.70) Pass  Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass  Openings 1.39 (max. 2.00) 1.50 (max. 3.30) Pass  2a Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum 5.00 (design value) m³/(h.m²) @ 50 Pa Pass  Limiting System Efficiencies			-4.0 (-7.6	5%)		kWh/m²/yr	Pass
Element         Average         Highest           External wall         0.27 (max. 0.30)         0.27 (max. 0.70)         Pass           Party wall         0.00 (max. 0.20)         -         Pass           Floor         0.15 (max. 0.25)         0.15 (max. 0.70)         Pass           Roof         0.10 (max. 0.20)         0.10 (max. 0.35)         Pass           Openings         1.39 (max. 2.00)         1.50 (max. 3.30)         Pass           2a Thermal bridging         Thermal bridging calculated from linear thermal transmittances for each junction           3 Air permeability         Air permeability at 50 pascals           Maximum         5.00 (design value)         m³/(h.m²) @ 50 Pa         Pass           Limiting System Efficiencies         Limiting System Efficiencies	Criterion 2 – Limits or	n design flexibility		_			
Element Average Highest  External wall 0.27 (max. 0.30) 0.27 (max. 0.70) Pass  Party wall 0.00 (max. 0.20) - Pass  Floor 0.15 (max. 0.25) 0.15 (max. 0.70) Pass  Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass  Openings 1,39 (max. 2.00) 1.50 (max. 3.30) Pass  2a Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum 10.0 m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	<b>Limiting Fabric Sta</b>	ndards					
External wall  O.27 (max. 0.30)  Party wall  O.00 (max. 0.20)  Floor  O.15 (max. 0.25)  O.15 (max. 0.70)  Pass  Roof  O.10 (max. 0.20)  O.10 (max. 0.35)  Openings  1.39 (max. 2.00)  Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum  D.00  Maximum  Maximum  D.00  Max. 0.70)  Pass  O.15 (max. 0.70)  Pass  Pass  Pass  D.10 (max. 0.35)  Pass  Pass  D.10 (max. 3.30)  Pass  D.20 (design value)  Maximum  Maximum  D.20 Maximum  Maximum  D.30 Maximum  D.40 Maximum  D.50 Pa  Pass  Limiting System Efficiencies	2 Fabric U-values						
Party wall O.00 (max. 0.20) Floor O.15 (max. 0.25) O.15 (max. 0.70) Pass Roof O.10 (max. 0.20) O.10 (max. 0.35) Pass Openings 1,39 (max. 2.00) Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability Air permeability at 50 pascals Maximum  10.0  Pass  Pass  Pass  Limiting System Efficiencies	Element	A	verage	Hi	ighest		
Floor 0.15 (max. 0.25) 0.15 (max. 0.70) Pass  Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass  Openings 1.39 (max. 2.00) 1.50 (max. 3.30)  Pass  2a Thermal bridging  Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals 5.00 (design value) m³/(h.m²) @ 50 Pa  Maximum 10.0 m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	External wa	0.	27 (max. 0.30)	0.	27 (max. 0.7	0)	Pass
Roof 0.10 (max. 0.20) 0.10 (max. 0.35) Pass Openings 1.39 (max. 2.00) 1.50 (max. 3.30)  Pass  2a Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability Air permeability at 50 pascals Maximum  10.0 m³/(h.m²) @ 50 Pa Pass  Limiting System Efficiencies	Party wall	0.	.00 (max. 0.20)	-			Pass
Openings 1.39 (max. 2.00) 1.50 (max. 3.30)  Pass  Thermal bridging Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability Air permeability at 50 pascals Maximum  10.0  m³/(h.m²) @ 50 Pa Pass  Limiting System Efficiencies	Floor	0.	.15 (max. 0.25)	0.	15 (max. 0.7	0)	Pass
Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum  10.0  m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	Roof	0.	.10 (max. 0.20)	0.	10 (max. 0.3	5)	Pass
Thermal bridging calculated from linear thermal transmittances for each junction  3 Air permeability  Air permeability at 50 pascals  Maximum  10.0  m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	Openings	1.	39 (max. 2.00)	1.	50 (max. 3.3	0)	Pass
Air permeability  Air permeability at 50 pascals  Maximum  5.00 (design value)  10.0  m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	2a Thermal bridging	ng					
Air permeability at 50 pascals  Maximum  5.00 (design value)  10.0  m³/(h.m²) @ 50 Pa  Pass  Limiting System Efficiencies	Thermal bridging	ng calculated from linear	thermal transmitt	cances for each jur	nction		
Maximum 10.0 m³/(h.m²) @ 50 Pa Pass Limiting System Efficiencies	3 Air permeability						
Limiting System Efficiencies	Air permeabilit	y at 50 pascals	5.00 (des	sign value)		m³/(h.m²) @ 50 Pa	1
	Maximum		10.0			m³/(h.m²) @ 50 Pa	Pass
4 Heating efficiency	<b>Limiting System Ef</b>	ficiencies					
	4 Heating efficience	C.Y.					

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.



### **BUILDING REGULATION COMPLIANCE Calculation Type: New Build (As Designed)**



Main heating system	Boiler system with radiators or underfloor - Mains gas	Pass
	Data from database	
	Ideal LOGIC COMBI ESP1 35	
	Combi boiler	
	Efficiency: 89.6% SEDBUK2009 Minimum: 88.0%	
Secondary heating system	None	
	None	
5 Cylinder insulation		
Hot water storage	No cylinder	
<u>6 Controls</u>		
Space heating controls	Time and temperature zone control	Pass
Hot water controls	No cylinder	
Boiler interlock	Yes	Pass
7 Low energy lights		
Percentage of fixed lights with low-energy	100 %	
fittings		
Minimum	75 %	Pass
8 Mechanical ventilation		
Not applicable		
Criterion 3 – Limiting the effects of heat gains in su	mmer	
9 Summertime temperature		
Overheating risk (Severn Valley)	Not significant	Pass
Based on:		
Overshading	Average	
Windows facing East	4.89 m <sup>2</sup> , No overhang	
Windows facing West	4.07 m <sup>2</sup> , No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 100% of daylig	ht
	hours	
Criterion 4 – Building performance consistent with	DER and DFEE rate	
Party Walls		
Туре	U-value	
Filled Cavity with Edge Sealing	0.00 W/m²K	Pass
Air permeability and pressure testing		
3 Air permeability		
Air permeability at 50 pascals	5.00 (design value) m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa	l
Maximum	10.0 m³/(h.m²) @ 50 Pa	Pass
10 Key features		
Party wall U-value	0.00 W/m <sup>2</sup> K	
Roof U-value	0.10 W/m²K	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.



### **RECOMMENDATIONS**



	Typical cost	Typical savings per year	Energy efficiency	Environmenta I impact	Result
Low energy lights			0	0	Already installed
Solar water heating	£4,000 - £6,000	£29	B 85	B 88	Recommended
Photovoltaic	£3,500 - £5,500	£309	A 96	A 98	Recommended
Wind turbine			0	0	Not applicable
Totals	£7,500 - £11,500	£338	A 96	A 98	



This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.



### THERMAL BRIDGING

### **Calculation Type: New Build (As Designed)**



Property Reference	Plot 057 AS	Plot 057 AS								
Assessment Reference	Plot 057 AS	Plot 057 AS Prop Type Ref								
Property	3 bed, 2 bath	3 bed, 2 bath								
SAP Rating		83 B	DER	18.40	TER	19.08				
Environmental		86 B	% DER <ter< th=""><th></th><th>3.54</th><th></th></ter<>		3.54					
CO <sub>2</sub> Emissions (t/ye	ear)	1.20	DFEE	48.69	TFEE	52.65				
General Requireme	ents Compliance	Pass	% DFEE <tfee< th=""><th></th><th>7.53</th><th></th></tfee<>		7.53					
Assessor Details	Mr. Michael Brogden, Michael michael@darren-evans.co.uk	0 ,	Tel: 0333 5777 577, Assessor ID R034-0001							
Client										

	Junction detail	Source Type	Psi (W/mK)	Length (m)	Result	Reference
External wall	E2 Other lintels (including other steel lintels)	Independently assessed	0.211	9.26	1.95	CATNIC
External wall	E3 Sill	Table K1 - Approved	0.040	7.24	0.29	
External wall	E4 Jamb	Table K1 - Approved	0.050	18.30	0.92	
External wall	E5 Ground floor (normal)	Independently assessed	0.038	17.54	0.67	E05-CXBR- CW4040_100 mm-01- 150B&
External wall	E6 Intermediate floor within a dwelling	Independently assessed	0.004	17.54	0.07	E06-CXBR- CW4040_100 mm-01
External wall	E10 Eaves (insulation at ceiling level)	Table K1 - Approved	0.060	17.54	1.05	
External wall	E16 Corner (normal)	Independently assessed	0.042	9.74	0.41	E16-CXBR- CW4040_100 mm-01
External wall	E18 Party wall between dwellings	Independently assessed	0.052	9.74	0.51	E18-CXBR- CW4040_100 mm-01-RD22
Party wall	P1 Party wall - Ground floor	Independently assessed	0.010	8.55	0.09	P01-CXBR- EWM22- 150B&Bperp
Party wall	P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	0.000	8.55	0.00	
Party wall	P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	0.117	8.55	1.00	P04-CXBR- EWM22- Spand

Total:  $\fbox{6.95}$  W/mK: Y-Value:  $\fbox{0.044}$  W/m²K:



### **BASIC COMPLIANCE REPORT Calculation Type: New Build (As Designed)**



<b>Property Reference</b>	Plot 057 AS				Issued on Date	30/05/2019
Assessment	Plot 057 AS		Pro	p Type Ref	Type 51 Hipped 1FW	/ END
Reference						
Property	3 bed, 2 bath					
SAP Rating		83 B	DER	18.40	TER	19.08
Environmental		86 B	% DER <ter< th=""><th></th><th>3.54</th><th></th></ter<>		3.54	
CO <sub>2</sub> Emissions (t/y	ear)	1.20	DFEE	48.69	TFEE	52.65
General Requireme	ents Compliance	Pass	% DFEE <tfee< th=""><th></th><th>7.53</th><th></th></tfee<>		7.53	
<b>Assessor Details</b>	Mr. Michael Brogden, Michael	el Brogden, T	el: 0333 5777 577,		Assessor ID	R034-0001
	michael@darren-evans.co.uk					
Client						

#### SUMARY FOR INPUT DATA FOR New Build (As Designed)

#### Criterion 1 – Achieving the TER and TFEE rate

#### 1a TER and DER

Fuel for main heating Mains gas Fuel factor 1.00 (mains gas) Target Carbon Dioxide Emission Rate (TER) 19.08  $kgCO_2/m^2$ Dwelling Carbon Dioxide Emission Rate (DER) 18.40 kgCO<sub>2</sub>/m<sup>2</sup> **Pass** -0.68 (-3.6%)  $kgCO_2/m^2$ 1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE) 52.65 kWh/m²/yr Dwelling Fabric Energy Efficiency (DFEE) 48.69 kWh/m²/yr

-4.0 (-7.6%) kWh/m²/yr **Pass** 

#### Criterion 2 – Limits on design flexibility

#### **Limiting Fabric Standards**

#### 2 Fabric U-values

Element	Average	Highest	
External wall	0.27 (max. 0.30)	0.27 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.15 (max. 0.25)	0.15 (max. 0.70)	Pass
Roof	0.10 (max. 0.20)	0.10 (max. 0.35)	Pass
Openings	1.39 (max. 2.00)	1.50 (max. 3.30)	Pass

#### 2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

#### 3 Air permeability

Air permeability at 50 pascals	5.00 (design value)	
Maximum	10.0	Pass

#### **Limiting System Efficiencies**

#### **4 Heating efficiency**



## **BASIC COMPLIANCE REPORT Calculation Type: New Build (As Designed)**



Main heating system	Boiler system with radiators or underfloor - Mains gas	Pass
	Data from database	
	Ideal LOGIC COMBI ESP1 35	
	Combi boiler	
	Efficiency: 89.6% SEDBUK2009 Minimum: 88.0%	
Secondary heating system	None	
5 Cylinder insulation		
Hot water storage	No cylinder	
_	THO CYMMUCE	
6 Controls	Time and to recent up age control	Dans
Space heating controls	Time and temperature zone control	Pass
Hot water controls	No cylinder	
Boiler interlock	Yes	Pass
7 Low energy lights		
Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass
8 Mechanical ventilation		
Not applicable		
Criterion 3 – Limiting the effects of heat gains in su	mmer	
9 Summertime temperature		
Overheating risk (Severn Valley)	Not significant	Pass
Based on:		
Overshading	Average	
Windows facing East	4.89 m <sup>2</sup> , No overhang	
Windows facing West	4.07 m <sup>2</sup> , No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 100% of daylight	
	hours	
Criterion 4 – Building performance consistent with	DER and DFEE rate	
Party Walls		
Туре	U-value	
Filled Cavity with Edge Sealing	0.00 W/m²K	Pass
Air permeability and pressure testing		
3 Air permeability		_
Air permeability at 50 pascals	5.00 (design value)	
Maximum	10.0	Pass
10 Key features		
Party wall U-value	0.00 W/m²K	
Roof U-value	0.10 W/m²K	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.





<b>Property Reference</b>	Plot 057 AS	,				Iss	ued on Da	te 30/0	05/2019
Assessment	Plot 057 AS	,			Prop Type	Ref Typ	e 51 Hipped	1FW END	
Reference									
Property	3 bed, 2 ba	th							
SAP Rating			83 B	DER	18	.40	TER		19.08
Environmental			86 B	% DER <ter< th=""><th></th><th></th><th>3.54</th><th></th><th></th></ter<>			3.54		
CO₂ Emissions (t/yea	ar)		1.20	DFEE	48.	.69	TFEE		52.65
<b>General Requiremen</b>	nts Compliance		Pass	% DFEE <tfe< th=""><th>E</th><th></th><th>7.53</th><th></th><th></th></tfe<>	E		7.53		
Assessor Details	Mr. Michael Br	ogden. Mich	nael Brogden. T	el: 0333 5777 5	77.		Assessor I	D R03	34-0001
	michael@darre	_	_	0000 0177 0	,			1.00	
Client									
SUMMARY FOR INPU	T DATA FOR: N	lew Build (A	s Designed)						
Orientation		East			7				
Property Tenure		Unknown							
Transaction Type		New dwelli	ing						
Terrain Type		Urban							
1.0 Property Type		House, End	l-Terrace						
2.0 Number of Storeys		2							
3.0 Date Built		2017							
4.0 Sheltered Sides		2							
5.0 Sunlight/Shade		Average or	unknown						
		C	Ground Floor: 1st Storey:	Heat Loss Perimo 17.54 m 17.54 m	eter Inte	rnal Floor 38.43 m <sup>2</sup> 38.43 m <sup>2</sup>	2	2.31 2.56	m
7.0 Living Area		31.02			m²				
8.0 Thermal Mass Parar	meter	Precise cald	culation						
Thermal Mass		207			kJ/m²K				
9.0 External Walls Description	Туре	Co	nstruction			U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
External Wall 1	Cavity Wa		vity wall : plasterbo vity, any outside sti	oard on dabs, AAC b ructure	olock, filled	0.27	60.00	85.42	72.22
9.1 Party Walls Description	Туре	Co	nstruction				U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Party Wall 1	Filled Cav Edge Seal		ngle plasterboard o ocks, cavity or cavit	n dabs both sides, I y fill	ightweight agg	regate	0.00	110.00	41.61
9.2 Internal Walls Description	Cor	nstruction						Kappa (kJ/m²K)	Area (m²)
Internal Wall 1	Plas	sterboard on tir	mber frame					9.00	119.90
10.0 External Roofs Description	Туре	Co	nstruction			U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
External Roof 1	External F	Plane Roof Pla	sterboard, insulate	ed at ceiling level		0.10	9.00	34.43	34.43
10.2 Internal Ceilings									





Description			Construction							Kappa (kJ/m²K)	Area (m²)
Internal Ceiling 1			Plasterboard ceiling	, carpeted chipbo	oard floor					9.00	38.43
11.0 Heat Loss Floor		Туре	Cons	struction					U-Value	Карра	Area
Description		турс	Cons	struction					(W/m²K)	(kJ/m²K)	(m²)
Heat Loss Floor 1		Groun	d Floor - Solid Slab	on ground, scree	ed over ins	sulation			0.15	110.00	38.43
11.2 Internal Floors	1										
Description			Construction							Kappa (kJ/m²K)	Area
floor			Plasterboard ceiling,	, carpeted chipbo	ard floor					18.00	(m²) 38.43
12.0 Opening Types											
Description	Data So	ource	Туре	Glazing		Glazing Gap	g Argon Filled		ie Frame Type	Frame Factor	U Valu (W/m²l
French Door	Manufa r	acture	Window	Double glazed				0.71		0.70	1.41
Window		acture	Window	Double glazed				0.71		0.70	1.41
Solid door tall win		acture	Solid Door								1.20
half glazed	-	acture	Half Glazed Door	Double Low-E	Soft 0.05			0.63		0.70	1.50
13.0 Openings										_	
Name (	Opening Type		Location	Orientatio n	Curtain Type	Overhang Ratio	Wide Overhans		Height Coun (m)	t Area (m²)	Curtair Closed
Front door S	Solid Door		[1] External Wall 1	East	Type	Ratio	Overnang	5 (111)	(111)	2.12	Closed
front windows \	Window		[1] External Wall 1		Dark-						
					coloured						
				East	curtain or	0.00				4.89	100
					roller blind						
rear door l	Half Glazed Do	oor	[1] External Wall 1	West	Dilliu					2.12	100
rear windows \	Window		[1] External Wall 1		Dark-						
					coloured						
				West	curtain or	0.00				4.07	100
					roller						
					blind						
14.0 Conservatory 15.0 Draught Proofi	ina		None 100				%				
16.0 Draught Lobby	_		No				/0				
17.0 Thermal Bridgi			Calculate Br	idaes							
17.1 List of Bridges	0		Carculate Di	14963							
Source Type	Е	Bridge	Туре			Length	Psi	Imported	Reference:		
Independently ass			er lintels (including o	other steel lintels	)	9.26	0.211	No	CATNIC		
Table K1 - Approve		3 Sill				7.24	0.040	No			
Table K1 - Approve		4 Jam	-			18.30	0.050	No			
Independently ass	sessed E	5 Gro	und floor (normal)			17.54	0.038	No	E05-CXBR-CV 150B&	/4040_100n	nm-01-
Independently ass			rmediate floor withi			17.54	0.004	No	E06-CXBR-CV	/4040_100n	nm-01
Table K1 - Approve			ves (insulation at cei	ling level)		17.54	0.060	No			
Independently ass			rner (normal)			9.74	0.042	No	E16-CXBR-CV	_	
Independently ass			rty wall between dw			9.74	0.052	No	E18-CXBR-CV	_	
Independently ass			y wall - Ground floo			8.55	0.010	No	P01-CXBR-EW	/M22-150B	яВрегр
Table K1 - Default	C	lwellin	•			8.55	0.000	No			
Independently ass	sessed P	94 Part	xy wall - Roof (insula	tion at ceiling lev	el)	8.55	0.117	No	P04-CXBR-EV	/M22-Spand	l
Y-value			0.044				$W/m^2K$				





18.0 Pressure Testing	Yes		
Designed AP₅o	5.00		m³/(h.m²) @ 50 Pa
Property Tested ?			, , , ,
As Built AP <sub>50</sub>			m³/(h.m²) @ 50 Pa
			,, ,,
19.0 Mechanical Ventilation			
Summer Overheating	[		
Windows open in hot weather	Windows half open		
Cross ventilation possible	Yes		
Night Ventilation	No		
Air change rate	4.00		
Mechanical Ventilation			
Mechanical Ventilation System Present	No		
20.0 Fans, Open Fireplaces, Flues			
		her	Total
Number of Chimneys		0	0
Number of open flues  Number of intermittent fans	0	0	0 3
Number of massive vents			0
Number of flueless gas fires			0
21.0 Fixed Cooling System	No		
22.0 Lighting			
Internal			
Total number of light fittings	15		
Total number of L.E.L. fittings	15		
	100.00		%
Percentage of L.E.L. fittings  External	100.00		70
External lights fitted	No		
External lights litted	INO		
23.0 Electricity Tariff	Standard		
24.0 Main Heating 1	Database		
Percentage of Heat	100		%
Database Ref. No.	17929		
Fuel Type	Mains gas		
Main Heating	BGW		
SAP Code	104		
In Winter	90.5		
In Summer	87.3		
Controls	CBI Time and temperature zone contr	ol	
PCDF Controls	0		
Delayed Start Stat	Yes		
Sap Code	2110		
Flue Type	Balanced		
Fan Assisted Flue	Yes		
Is MHS Pumped	Pump in heated space		
Heat Emitter	Radiators		
Flow Temperature	Normal (> 45°C)		
Combi boiler type	Standard Combi		
· · · · · · · · · · · · · · · · · ·			





Combi keep hot type	None	
25.0 Main Heating 2	None	
		1
Community Heating	None	
28.0 Water Heating	HWP From main heating 1	
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	No	
Storage System		
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	None	
•		1

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings after improvement	
		per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£29	B 85	
	Typical Cost	Typical savings	Ratings after improvement	
		per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3.500 - £5.500	£309	A 96	

