

New Dwelling adjacent to the School House, Salem  
Designed SAP  
Carbon Emissions Calculation – Part L1a

For

Gareth Evans  
21<sup>st</sup> June 2019

The Beacon,  
Dafen Business Park,  
Llanelli,  
Carmarthenshire,  
SA14 8LQ  
0845 094 1593  
llanelli@melinconsultants.co.uk

Park House,  
10 Park Street,  
Bristol,  
BS1 5HX  
0845 094 1279  
bristol@melinconsultants.co.uk

4th Floor,  
Rex House,  
4-12 Regent Street, London,  
SW1Y 4RG.  
0845 094 1847  
london@melinconsultants.co.uk

[www.melinconsultants.co.uk](http://www.melinconsultants.co.uk)



Melin Consultants are accredited to provide a range of calculation, assessment and testing services.  
They are members of CIBSE Low Carbon Consultants.

Melin Consultants fully check all work prior to completion and a robust audit trail exists to demonstrate accountability.

All information within this document is based on evidence provided in the form of drawings and specifications.

CPD (Continual Professional Development) records are kept and all technical staff are required to complete a minimum 20 hours per year in training activities.

Low Carbon Consultants have the expertise and necessary qualifications to offer advice in a professional capacity on matters relating to Part L of the Building Regulations and sustainability within the construction sector.

This document contains the following information:

- Building Regulations Reports, Predicted Energy Assessment and SAP Overview

Project Ref: 708583

Report Date: 21/06/2019

Report author: Gideon Griffiths

Function: Technical Consultant

Authorised by: Darren Baker

Function: Senior Consultant

# Regulations Compliance Report

Approved Document L1A 2014 Edition, Wales assessed by Stroma FSAP 2012 program, 1.0.4.18

Printed on 21 June 2019 at 13:52:11

## Project Information:

**Assessed By:** Gideon Griffiths (STRO030315) **Building Type:** Detached House

## Dwelling Details:

**NEW DWELLING DESIGN STAGE** Total Floor Area: 162.44m<sup>2</sup>  
**Site Reference :** 708583 **Plot Reference:** 708583  
**Address :** New dwelling adjacent to , the School House, Salem, Llandeilo, SA19 7LY

## Client Details:

**Name:** Gareth Evans  
**Address :** Y Stabal, Dryslwyn, Carmarthen, SA32 8RE

**This report covers items included within the SAP calculations.  
 It is not a complete report of regulations compliance.**

## 1 TER and DER

Fuel for main heating system: Oil  
 Fuel factor: 1.17 (oil)  
 Target Carbon Dioxide Emission Rate (TER) 18.44 kg/m<sup>2</sup>  
 Dwelling Carbon Dioxide Emission Rate (DER) 17.50 kg/m<sup>2</sup> **OK**

## 2 Fabric U-values

Element	Average	Highest	
External wall	0.21 (max. 0.21)	0.21 (max. 0.70)	<b>OK</b>
Floor	0.12 (max. 0.18)	0.12 (max. 0.70)	<b>OK</b>
Roof	0.15 (max. 0.15)	0.15 (max. 0.35)	<b>OK</b>
Openings	1.41 (max. 1.60)	1.50 (max. 3.30)	<b>OK</b>

## 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 **OK**

## 4 Heating efficiency

**Main Heating system:** Boiler systems with radiators or underfloor heating - heating oil  
 Data from manufacturer  
 Combi boiler  
 Efficiency 91.0 % SEDBUK2009  
 Minimum 86.0 % **OK**

**Main Heating system 2:** Room heaters - wood logs  
 Closed room heater  
 Efficiency 65 %  
 Minimum 65 %

**Secondary heating system:** None

# Regulations Compliance Report

## 5 Cylinder insulation

Hot water Storage: No cylinder

## 6 Controls

Space heating controls	TTZC by plumbing and electrical services	OK
Space heating controls 2:	Programmer and room thermostats	OK
Hot water controls:	No cylinder thermostat	
	No cylinder	
Boiler interlock:	Yes	OK

## 7 Low energy lights

Percentage of fixed lights with low-energy fittings	100.0%	
Minimum	75.0%	OK

## 8 Mechanical ventilation

Not applicable

## 9 Summertime temperature

Overheating risk (Wales):	Not significant	OK
---------------------------	-----------------	----

Based on:

Overshading:	Average or unknown
Windows facing: West	5.16m <sup>2</sup>
Windows facing: East	1.26m <sup>2</sup>
Windows facing: South	2.2m <sup>2</sup>
Windows facing: North	7.56m <sup>2</sup>
Roof windows facing: West	4.79m <sup>2</sup>
Roof windows facing: East	2.05m <sup>2</sup>
Ventilation rate:	8.00

## 10 Key features

Floors U-value	0.12 W/m <sup>2</sup> K
----------------	-------------------------

# Predicted Energy Assessment



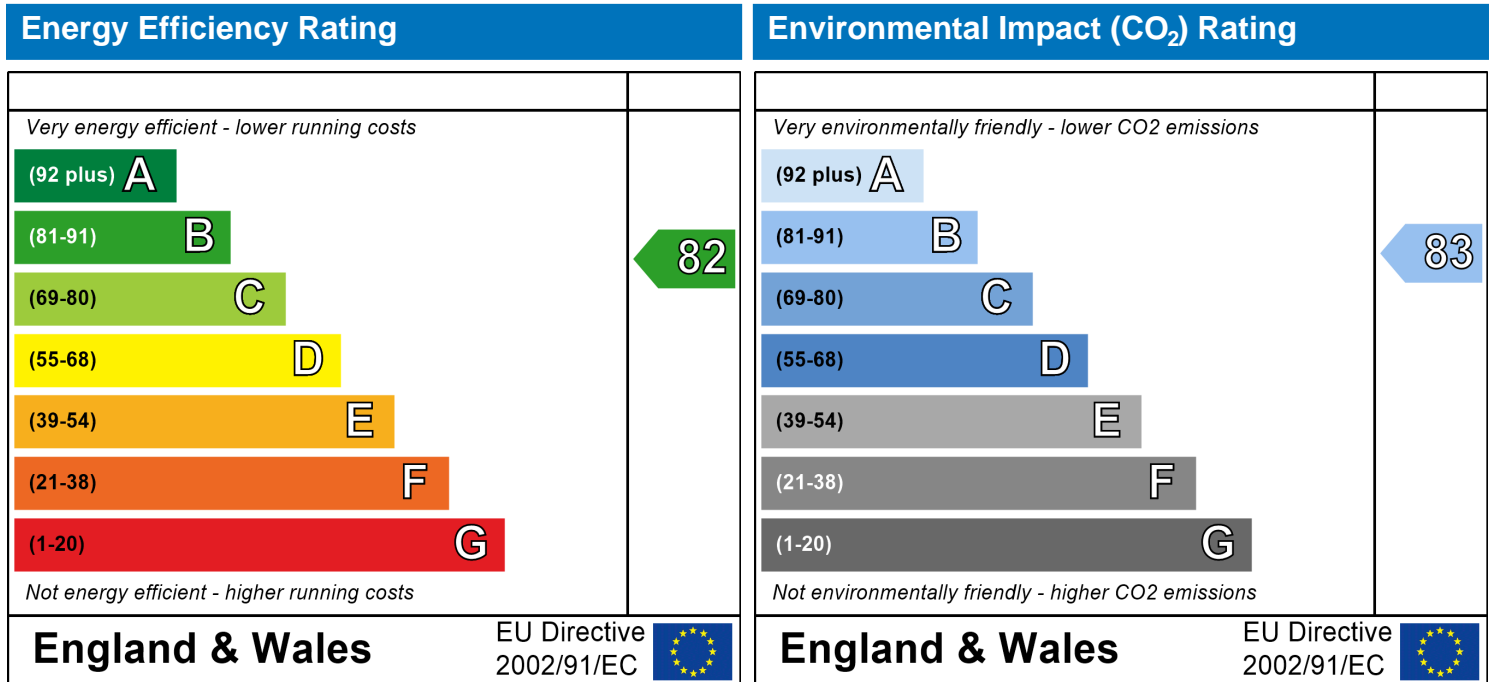
New dwelling adjacent to the School House  
Salem  
Llandeilo  
SA19 7LY

Dwelling type:  
Date of assessment:  
Produced by:  
Total floor area:

Detached House  
21 June 2019  
Gideon Griffiths  
162.44 m<sup>2</sup>

This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO<sub>2</sub>) emissions.



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.

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.

# SAP Input

## Property Details: 708583

Address: New dwelling adjacent to , the School House, Salem, Llandeilo, SA19 7LY  
 Located in: Wales  
 Region: Wales  
 UPRN:  
 Date of assessment: 21 June 2019  
 Date of certificate: 21 June 2019  
 Assessment type: New dwelling design stage  
 Transaction type: New dwelling  
 Tenure type: Unknown  
 Related party disclosure: No related party  
 Thermal Mass Parameter: Calculated 246.74  
 Water use <= 125 litres/person/day: True  
 PCDF Version: 443

## Property description:

Dwelling type: House  
 Detachment: Detached  
 Year Completed: 2019  
 Floor Location: Floor area: Storey height:  
 Floor 0 85.72 m<sup>2</sup> 2.6 m  
 Floor 1 76.72 m<sup>2</sup> 2.3 m  
 Living area: 51.24 m<sup>2</sup> (fraction 0.315)  
 Front of dwelling faces: West

## Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
W	SAP 2012	Half glazed	double-glazed	No	PVC-U
N	SAP 2012	Half glazed	double-glazed	No	PVC-U
W	Manufacturer	Windows	double-glazed	No	PVC-U
E	Manufacturer	Windows	double-glazed	No	PVC-U
S	Manufacturer	Windows	double-glazed	No	PVC-U
N	Manufacturer	Windows	double-glazed	No	PVC-U
W	Manufacturer	Roof Windows	double-glazed	No	PVC-U
E	Manufacturer	Roof Windows	double-glazed	No	PVC-U

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
W	mm	0.7	0.76	1.5	2.1	1
N	mm	0.7	0.76	1.5	1.89	1
W	16mm or more	0.7	0.76	1.4	5.16	1
E	16mm or more	0.7	0.76	1.4	1.26	1
S	16mm or more	0.7	0.76	1.4	2.2	1
N	16mm or more	0.7	0.76	1.4	7.56	1
W	16mm or more	0.7	0.76	1.4	4.79	1
E	16mm or more	0.7	0.76	1.4	2.05	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
W		External Walls	West	0	0
N		External Walls	North	0	0
W		External Walls	West	0	0
E		External Walls	East	0	0
S		External Walls	South	0	0
N		External Walls	North	0	0
W		Sloped	West	0.001	0
E		Sloped	East	0.001	0

# SAP Input

Overshading: Average or unknown

## Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
<u>External Elements</u>							
External Walls	199.28	20.17	179.11	0.21	0	False	150
Sloped	109.6	6.84	102.76	0.15	0		9
Flat	9	0	9	0.15	0		9
GF	85.72			0.12			110
<u>Internal Elements</u>							
Internal walls	78.54						9
FF	76.72						9
FF	76.72						18
<u>Party Elements</u>							

## Thermal bridges:

Thermal bridges:	User-defined (individual PSI-values) Y-Value = 0.0452					
	Length	Psi-value				
[Approved]	10.7	0.3	E2	Other lintels (including other steel lintels)		
[Approved]	4.4	0.04	E3	Sill		
[Approved]	34.2	0.05	E4	Jamb		
[Approved]	42.5	0.16	E5	Ground floor (normal)		
[Approved]	38.6	0.07	E6	Intermediate floor within a dwelling		
[Approved]	35.9	0.04	E11	Eaves (insulation at rafter level)		
[Approved]	11.2	0.04	E13	Gable (insulation at rafter level)		
[Approved]	24.8	0.09	E16	Corner (normal)		
[Approved]	5.2	-0.09	E17	Corner (inverted internal area greater than external area)		

## Ventilation:

Pressure test:	Yes (As designed)
Ventilation:	Natural ventilation (extract fans)
Number of chimneys:	0
Number of open flues:	0
Number of fans:	5
Number of passive stacks:	0
Number of sides sheltered:	2
Pressure test:	5

## Main heating system:

Main heating system:	Boiler systems with radiators or underfloor heating
	Gas boilers and oil boilers
	Fuel: heating oil
	Info Source: Manufacturer Declaration
	Manufacturer's data
	Efficiency: 91.0% (SEDBUK2009)
	Condensing combi
	Underfloor heating and radiators, pipes in screed above insulation
	Fraction of main heat: 0.69
	Central heating pump : 2013 or later
	Design flow temperature: Unknown
	Open
	Boiler interlock: Yes
	Delayed start

## Main heating Control:

Main heating Control:	Time and temperature zone control by suitable arrangement of plumbing and electrical
-----------------------	--

# SAP Input

services  
Control code: 2110

## Secondary Main heating system:

Secondary Main heating system: Room heaters  
Solid fuel room heaters  
Fuel: wood logs  
Info Source: SAP Tables  
SAP Table: 633  
Closed room heater

## Secondary Main heating Control:

Secondary Main heating Control: Programmer and room thermostats  
Control code: 2605

## Secondary heating system:

Secondary heating system: None

## Water heating:

Water heating: From main heating system  
Water code: 901  
Fuel :heating oil  
No hot water cylinder  
Waste Water Heat Recovery System:  
Total rooms with shower and/or bath: 1  
Product index: 080012, Power-pipe R2-48 System A  
Number of mixer showers in rooms with a bath: 0  
Number of mixer showers in rooms without a bath: 1  
Solar panel: False

## Others:

Electricity tariff: Standard Tariff  
In Smoke Control Area: Unknown  
Conservatory: No conservatory  
Low energy lights: 100%  
Terrain type: Low rise urban / suburban  
EPC language: English  
Wind turbine: No  
Photovoltaics: None  
Assess Zero Carbon Home: No




Project Ref: 708583

Address: New Dwelling adjacent to the School House, Salem, Llandeilo

Client: Gareth Evans

**This document must be submitted with your SAP calculations for building control approval**

Building Fabric		
Element	Construction	U value (W/m <sup>2</sup> K) Office Use Only
Floor	150mm Celotex. U Value as given	0.12
External wall	Cavity wall, 80mm Celotex. U Value as calculated	0.21
Roof (Slope)	150mm Celotex between rafters, 25mm Celotex below. U Value as given	0.15
Roof (Flat)	100mm Celotex between joists, 60mm Celotex below. U Value as given	0.15
Doors	Default used	1.5
Windows	Default used	1.4
Heating & Hot Water		
Primary heating	Oil combi boiler with an efficiency of 91% feeding radiators and underfloor heating	
Additional heating	Log burner in main living area	
Water Heating	From main heating system	
Heating controls	Time and temperature zone control	
Ventilation	Natural throughout	
Renewables	WWHRS used on 1 shower. Power-pipe R2-48 used	
Others		
Air leakage	A design air permeability of 7m <sup>3</sup> /(h.m <sup>2</sup> ) at 50Pa has been allowed for.	
Detailing	Accredited Construction Details (ACD's) have been adopted.	
Lighting	100% L.E.L fittings have been allowed for.	
<b>Additional Information</b>		
Please check & if you have any queries contact us, any changes during construction will affect the final calculation.		
Drawing No.		
		Date 21/06/2019
Consultant Signature		