Certificate number: SP1202

Date of Issue: 10 November 2010

OFFICE COPY

SAP

BR-2011-0014

ENERGY RATING

Address of dwelling:

Proposed Dwelling @, 200-201, Millisle Rd, Donaghadee, Co.Down

The Energy Rating of this dwelling is:

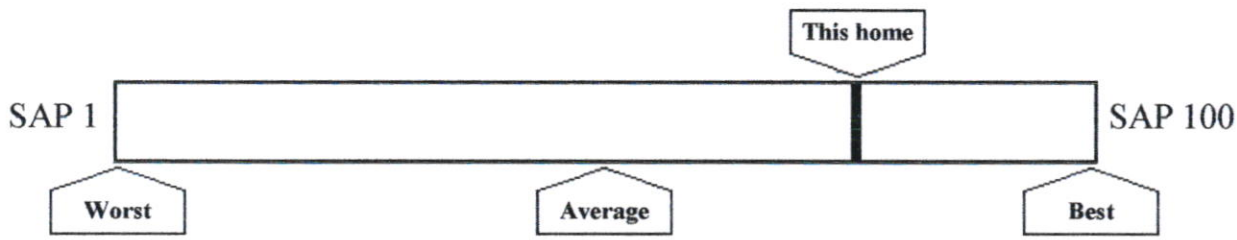
76

on a scale of 1 to 100 - the higher the rating the more energy efficient the home.

The assessment is based on energy costs for space heating, water heating and lighting assuming standard occupancy and standard climate conditions.

The energy rating was calculated in accordance with the current building regulations by 4262-0002, Gareth Chambers, Tel: 028 4483 1227, Fax: 028 4483 2747, 37 Ballywillin Rd, Crossgar, County Down, Northern Ireland for .

What is the energy performance of this home in comparison with other homes?



For more information on energy ratings contact your local energy efficiency advice centre on 0800 512 012

COMMERCIAL CONNECTIONS LTD
SPECIALIST SERVICES IN BUILDING ENERGY RATING
37 Ballywillin Rd
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Assessors Name: Gareth Chambers
Accreditation Body: Elmhurst Energy Systems
Accreditation Number: EES/005537
Licensed Surveyor I.D: 4262-0002

SAP ENERGY RATING

PROJECT REF: SP1202

PROPOSED DWELLING @ 200-201 MILLISLE RD DONAGHADEE, CO DOWN

DESIGN REPORT

DATE OF ISSUE: 10/11/2010

We would highly recommend that along with Building Control, the Building Contractor, Architect, Engineer and Home Owner should also have a complete copy of this report.

In an effort to be as environmentally friendly as possible we have emailed you this report. Please consider doing the same and only print if unavoidable ☺

KEY DESIGN FEATURES

Should be read in conjunction with full SAP Documents supplied

Primary Heating System

Oil Fired Condensing Boiler, - 93% efficiency: Heat Emitters: Underfloor Heating (pipes in thin screed)
**we have inserted the minimum boiler efficiency that will pass with this particular dwelling. You may have a higher efficiency on your drawings or in your design and it would be recommended to install better than the figure above*
Further Guidance can be sought from the SEDBUK Database at *www.sedbuk.com*

Heating Controls

Must be *"Full zone control"* meaning *"must be capable of independent programming of heating times and temperatures of 2 or more zones"*. This involves separate plumbing circuits, either with their own programmers or separate channels in the same programmer. By contrast TRV's will only provide independent temperature control.

Domestic Hot Water

Hot Water Cylinder to be in the "heated space" and have independent time and thermostat control.
Capacity of 210 litres with 50mm manufacturers foam
All DHW Pipes must be insulated. Further Guidance can be sought from the Office of the Deputy Prime Ministers (ODPM) document **"Domestic Heating and Compliance Guide"**

Lighting

Low energy light fittings **MUST BE USED**
Either 1No per 4 fittings or 1No per 25m² of floor area. This **does not** mean low energy bulbs, but the actual fittings themselves (See Guidance on separate sheet)
The Number of Fittings on Design Input Sheet is assumed as 1 PER ROOM and 25% of these to be Low Energy. This is never usually the case onsite so care must be taken to meet the criteria above independent of this SAP Report
If there are external lights present then they also must have low energy light fittings together with light and motion sensors.

Secondary Heating

Is included as an open fire in grate using wood/coal (dual-fuel) as a fuel source
This must be **HETAS Approved**. HETAS is the official body recognised by government to approve solid fuel domestic heating appliances, fuels and services. Guidance downloaded from *www.hetas.co.uk*

Glazing & Openings

U-Value of 1.80W/m2K
This means using double glazed window units, 12mm argon filled cavity with low e (k-glass)
All External Doors should achieve the following U-Values – Solid Wood – at least 3.00, Glazed Wood – at least 2.20 (*All doors above 60% in glazing have been included as windows as per SAP Guidance and they should achieve a U-Value no greater than 1.80 as above)

Fabric Insulation

Included within this document are Fabric U-Value Calculations showing the insulation specified on the drawings and the value used in the SAP Calculation, if these are different to what you plan to use onsite this should be informed to us. If the insulation noted on the drawings is non-compliant we will include this upgrade below in assumptions/modifications section, your drawings and specification should be changed to suit.

Air Pressure Test

This dwelling should be tested when building fabric is in its near completed state and the air Permeability should be no more than **10 $m^3.hr^{-1}.m^2$** which is the maximum allowed air leakage.
The lower this value the more airtight the dwelling is. We can help you with pricing and advice on this at the relevant stage

Accredited Details

This is the Governments Guidance on helping the construction industry meet a certain performance standard for Thermal Bridging. These should be used on this particular dwelling (I can email a copy if you wish) or they can be downloaded at: *www.buildingcontrol-ni.com (Click "Building Regulations – 6th Tab and Accredited Details at the bottom left of the screen)*

This report is **"AS DESIGNED"**
An "AS BUILT" report will need to be carried out at the appropriate stage to be submitted to Building control along with an Airtightness test result and Energy Performance Certificate from an accredited assessor. Please contact us about these services at least **5-6 weeks before** handover/completion.

We hope you are happy with achieving this Specific Dwelling Emission Rate and would welcome any comments to the numbers below

The Regulations

Our brief was to show calculations to help fulfil the criteria set out in Conservation of Fuel and Power (NI) Part F1 (Dwellings) 2006. We have shown compliance by the Target Emission Rate vs Dwelling Emission Rate CO^2 Compliance given in part (2.9 – 2.41) pages 8 - 15 of Building Regulations (Northern Ireland) Conservation of Fuel and Power - Part F1. This requires calculations to be carried out in the fashion supplied, via our licensed software program.

ASSUMPTIONS/MODIFICATIONS

Taken within the SAP to generate a Compliance Pass due to lack of or inadequate information on the drawings, upgrading of non-complaint items OR important design features;

Hot Water Details assumed as above
Fuel and Type of Boiler assumed

Kind Regards

Gareth Chambers
Building Energy Assessor
Commercial Connections Ltd

DESIGN INPUT & RESULTS

Users Ref: SP1202 **Issued on:** 10.November.2010

Prop Type Ref:

Property: Proposed Dwelling @, 200-201, Millisle Rd, Donaghadee, Co.Down **DER:** 24.82 **TER:** 24.82

SAP Rating: 76 C **SAP Energy Cost:** £778.69 **CO2 Emissions:** 8.35 t/year

EI Rating: 71 C **Energy used:** 117 kWh/m2/year **Ene1:** 0 **ZC:** 0.00

Surveyor: 4262-0002, Gareth Chambers, Tel: 028 4483 1227, Fax: 028 4483 2747
Address: 37 Ballywillin Rd, Crossgar, County Down, Northern Ireland
Client:

Software Version: EES SAP 2005.018.03, October 2009 (Design System), BRE SAP Worksheet 9.81
SAP version: 9.81 Regs Region: Northern Ireland (Technical Booklet F1 August 2006), Calculation Type: New Build

SUMMARY OF INPUT DATA FOR DWELLING AS DESIGNED:

Region & Orientation	Region: NI Northern Ireland (14), House Orientation: W West
1.0 Property Type	H House, D Detached
2.0 Number of Storeys	3
3.0 Date Built	2010
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	A Average or unknown
6.0 Internal Walls Perimeter	25.44 m, 89.09 m, 55.20 m
7.0 Internal Floor Area	39.28 m2, 195.45 m2, 112.48 m2
8.0 Living Area	68.90, fraction: 0.20
9.0 Average Storey Height	2.50 m, 2.50 m, 2.64 m
9.1 Conservatory	None

Openings	Description	Glazing Type	Solar Trans	Frame or Door Type	Air Gap	Argon Fill	Orientation	Uvalue	Area
10.0 Ext. Doors	doors	No Draught Lobby	0.00	Solid Wood		No		3.00 (T)	7.23
11.0 Windows	Front	Double,Low E,Soft Co	0.63	Wood	12 mm	Yes	West (0°)	1.80 (T)	3.65
	Rear	Double,Low E,Soft Co	0.63	Wood	12 mm	Yes	East (180°)	1.80 (T)	27.37
	Side 1	Double,Low E,Soft Co	0.63	Wood	12 mm	Yes	North (270°)	1.80 (T)	2.58
	Side 2	Double,Low E,Soft Co	0.63	Wood	12 mm	Yes	South (90°)	1.80 (T)	40.98
12.0 Roof Lights	RL E	Double,Low E,Soft Co	0.63	Wood	16 mm	No	East (180°)	1.80 (M)	1.08
	RL W	Double,Low E,Soft Co	0.63	Wood	16 mm	No	East (180°)	1.80 (M)	1.08

Openings Average: U: 1.90 Uvalue legend: (T) = Uvalue defaulted from SAP Table (M) = Manufacturer supplied

13.0 Draught Proofing	100%
14.0 Thermal Bridging	Default - Robust Construction
Thermal Bridges Y	0.080 Description
15.0 Pressure Test (q50)	Air permeability 10.0 m³/h.m² (assumed)
16.0 Mechanical Ventilation	None, Windows open during hot weather: Windows fully open
	Cross ventilation possible: Yes
17.0 Fans, Chimneys, Flues	4, 0, 1
17.1 Lighting	Light fittings: 14, L.E.L. fittings: 14, External lights: Yes, controlled: Yes

	Description	U-value	Shelter	Room in Roof	Area	Timber	Curtain Walling
18.0 Wall Types	Main	0.27	0.00		318.19	No	No
	Walls uvalue average: U: 0.27						
19.0 Plane Roofs	Slope Roof	0.17			152.16		
	Flat Roof	0.18			144.77		
	Roofs uvalue average: U: 0.17						
20.0 Ground Floor Types	Ground floor	0.23			39.28 (X)	No	
	Floors uvalue average: U: 0.23						

20.1 Thermal Mass	Simple Thermal Mass Parameter calculation: 19.00
	Ground Floor Mass: Medium - solid floor
	External Wall Mass: High - masonry walls (cavity fill or external insulation) with dense plaster
	Separating Wall Mass: High - masonry walls dense plaster
	Internal Partition Mass: High - masonry internal walls with dense plaster
20.2 Fixed Air Conditioning	No

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SUMMARY OF INPUT DATA FOR DWELLING AS DESIGNED:

21.0	Main Heating	BOD Oil condensing, Pumped: pump in heated space, Oil pump inside dwelling
	MHS Efficiency	Manufacturer data: 93.0%
	Manufacturer & Model	Manufacturer's data: u/k, u/k, 93.0%
	Heating Controls	CBI Time and temperature zone control
		Boiler interlock - Yes
	Underfloor Heating	Underfloor, pipes in Screed
21.1	Secondary Heating	RDJ Dual fuel open fire in grate, HETAS approved
	SHS Details	Efficiency: 37.0%
22.0	Hot Water Heating	HWP From the primary heating system
	Solar Water Heating	None
23.0	Thermal Store	None
24.0	Hot Water Cylinder	Yes, in heated space, With stat
		Water heating separately timed: Yes
	Insulation	Foam, Thickness: 50 mm, Pipes insulated
	Volume	210.00 litres
25.0	Community Heating	None
	CHP Unit	
26.0	Electricity Tariff	S - Standard
27.0	Photovoltaic Unit	None
27.1	Micro Wind Turbines Count	0
27.2	Small-scale Hydro electricity	0.00
28.0	Special Features	None