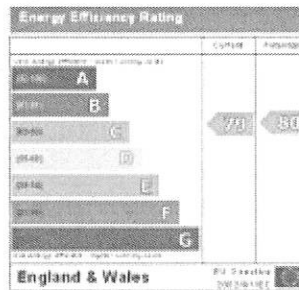
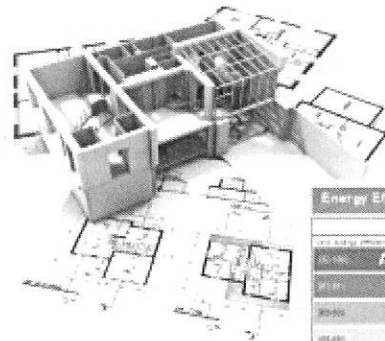




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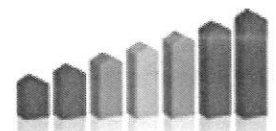


SAP Calculations

Client: Colin McKee

Project: Cavanacaw Road
Armagh

Contact: Unaccredited Surveyor
(undefined)
undefined@undefined.co.uk



energy rating made easy

Building Regulation Compliance

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Property Reference: 16-085-HTA

Issued on Date: 31.Aug.2017

Survey Reference: 16-085-HTA

Prop Type Ref: HTA1

Property: Cavanacaw Road, Armagh

SAP Rating: 83 B **CO2 Emissions (t/year):** 3.14 **DER:(NW)** 22.17 **PasReduction:** 5.9% **FEE:** 57.9 **ZC8:** 0.00
Environmental: 78 C **General Requirements Compliance:** Pass **TER:** 23.57 **HLP:** 1.50 **Energy cost:** £ 522

CfSH Results **Version:** **ENE1 Credits:** N/A **ENE2 Credits:** N/A **ENE7 Credits:** N/A **CfSH Level:** N/A

Surveyor: Unaccredited Surveyor, Tel: (undefined), Fax: (undefined) **Surveyor ID:** 0000-0000
Address: (undefined), (undefined), (undefined), (undefined)
Client: Colin McKee, 034

Software Version: Elmhurst Energy Systems SAP2009 Calculator (Design System) version 4.04r04

SAP version: SAP 2009, Regs Region: Northern Ireland (NI Technical Booklet F1 2011), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

1 TER and DER

Fuel for main heating:	Heating oil	
Fuel factor:	1.14 × 1.17 (oil)	
Target Carbon Dioxide Emission Rate (TER)	23.57 kg/m ²	
Dwelling 'CO2' Emission Rate (DERs)		
DER (N):	22.14	
DER (NE):	21.99	
DER (E):	21.77	
DER (SE):	21.58	
DER (S):	21.55	
DER (SW):	21.75	
DER (W):	22.02	
DER (NW):	22.17 (highest value)	
Dwelling Carbon Dioxide Emission Rate (DER)	(NW) 22.17 kg/m ²	OK

2 Fabric U-values

Element	Average	Highest	
External wall	0.27 (max. 0.30)	0.27 (max. 0.70)	OK
Floor	0.14 (max. 0.25)	0.14 (max. 0.70)	OK
Roof	0.15 (max. 0.20)	0.15 (max. 0.35)	OK
Openings	1.39 (max. 2.00)	1.40 (max. 3.30)	OK

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals:	3.75 (design value)	
Maximum	10.0	OK

4 Heating efficiency

Main heating system:	Boiler system with radiators or underfloor - Oil	
	Data from database	
	Grant Vortex 36S	
	Efficiency: 93.3% SEDBUK2009	
	Minimum: 88.0%	OK
Secondary heating system:	Room heaters - Dual Fuel Anthracite Wood	
	Data from manufacturer, tested to BS EN 613, HETAS approved	
	To be confirmed	
	Efficiency: 75%	
	Minimum: 65%	OK

5 Cylinder insulation

Hot water storage	Nominal cylinder loss: 1.43 kWh/day	
	Permitted by DBSCG 1.89	OK