

## Design - Draft

This design draft submission provides evidence towards compliance with Part L of the Building Regulations, in accordance with Appendix C of AD L1A. It has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the 'as built' property. This report covers only items included within the SAP and is not a complete report of regulations compliance.

Assessor name	Mr Andrew Hart	Assessor number	3652
Client		Last modified	14/02/2017
Address	Crowick House Belle Free Lane, Cudworth, Barnsley, S72 8LU		

Check	Evidence	Produced by	OK?																		
<b>Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target</b>																					
TER (kg CO <sub>2</sub> /m <sup>2</sup> .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.91	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO <sub>2</sub> /m <sup>2</sup> .a)	DER = -8.80	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER -8.80 < TER 15.91	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 47.2 < TFEE 67.6	Authorised SAP Assessor	Passed																		
<b>Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits</b>																					
<b>Fabric U-values</b>																					
Are all U-values better than the design limits in Table 2?	<table border="1"> <thead> <tr> <th>Element</th> <th colspan="2">Weighted average Highest</th> </tr> </thead> <tbody> <tr> <td>Wall</td> <td>0.14 (max 0.30)</td> <td>0.16 (max 0.70)</td> </tr> <tr> <td>Party wall</td> <td colspan="2">(no party wall)</td> </tr> <tr> <td>Floor</td> <td>0.09 (max 0.25)</td> <td>0.15 (max 0.70)</td> </tr> <tr> <td>Roof</td> <td>0.15 (max 0.20)</td> <td>0.16 (max 0.35)</td> </tr> <tr> <td>Openings</td> <td>0.80 (max 2.00)</td> <td>0.80 (max 3.30)</td> </tr> </tbody> </table>	Element	Weighted average Highest		Wall	0.14 (max 0.30)	0.16 (max 0.70)	Party wall	(no party wall)		Floor	0.09 (max 0.25)	0.15 (max 0.70)	Roof	0.15 (max 0.20)	0.16 (max 0.35)	Openings	0.80 (max 2.00)	0.80 (max 3.30)	Authorised SAP Assessor	Passed
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<b>Thermal bridging</b>																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
<b>Heating and hot water systems</b>																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Wood pellets in bulk, Regular boiler Biomass Boiler Data from manufacturer Efficiency = 90.00% 2009 SEDBUK Minimum = 75.00%  Second main heating system: Electricity, Electric underfloor heating In screed above insulation Efficiency = N/A Minimum = N/A  Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	Cylinder volume = 300.00 litres Nominal cylinder loss = 2.64kWh/day Maximum permitted cylinder loss = 3.98kWh/day Primary hot water pipes are not insulated	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit (main system 1) Time and temperature zone control (main system 2)  Hot water control: Boiler interlock (main system 1) Cylinder thermostat Separate water control	Authorised SAP Assessor	Passed
<b>Fixed internal lighting</b>			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 15  Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
<b>Criterion 3: the dwelling has appropriate passive control measures to limit solar gains</b>			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Slight (21.53°) Overheating risk (July) = Medium (23.28°) Overheating risk (August) = Medium (22.57°) Region = East Pennines Thermal mass parameter = 250.00 Ventilation rate in hot weather = 2.50 ach Blinds/curtains = Dark-coloured venetian blind	Authorised SAP Assessor	Passed
<b>Criterion 4: the performance of the dwelling, as designed, is consistent with the DER</b>			
Design air permeability (m <sup>3</sup> /(h.m <sup>2</sup> ) at 50Pa)	Design air permeability = 10.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.75 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 90.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed

Have the key features of the design been included (or bettered) in practice?

The following walls have a U-value less than 0.15W/m<sup>2</sup>K:

- Render Wall (0.13)
- Stone Wall (0.13)

The following floors have a U-value less than 0.13W/m<sup>2</sup>K:

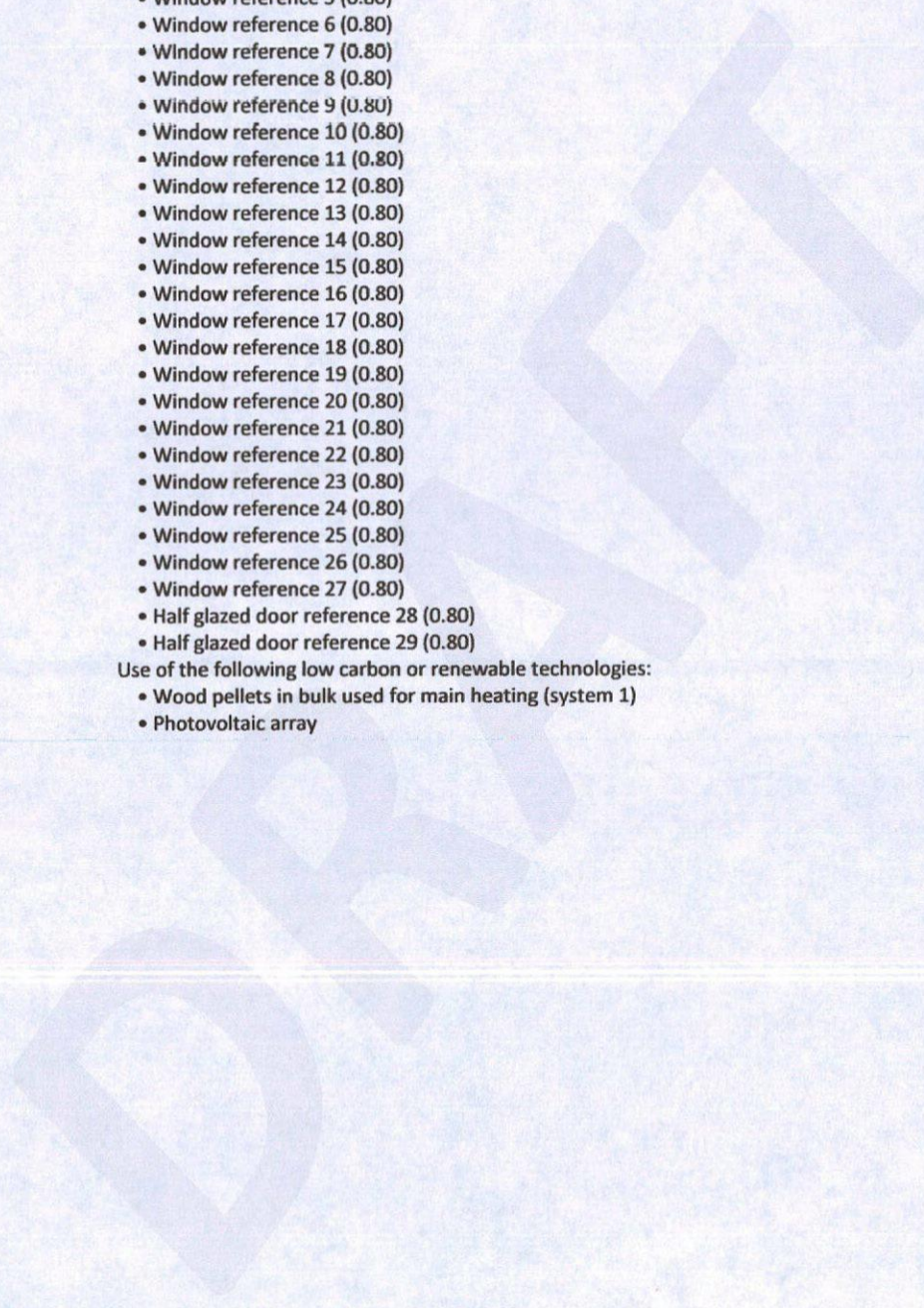
- Ground Floor (0.09)

The following openings have a U-value less than 1.2W/m<sup>2</sup>K:

- Window reference 1 (0.80)
- Window reference 2 (0.80)
- Window reference 3 (0.80)
- Window reference 4 (0.80)
- Window reference 5 (0.80)
- Window reference 6 (0.80)
- Window reference 7 (0.80)
- Window reference 8 (0.80)
- Window reference 9 (0.80)
- Window reference 10 (0.80)
- Window reference 11 (0.80)
- Window reference 12 (0.80)
- Window reference 13 (0.80)
- Window reference 14 (0.80)
- Window reference 15 (0.80)
- Window reference 16 (0.80)
- Window reference 17 (0.80)
- Window reference 18 (0.80)
- Window reference 19 (0.80)
- Window reference 20 (0.80)
- Window reference 21 (0.80)
- Window reference 22 (0.80)
- Window reference 23 (0.80)
- Window reference 24 (0.80)
- Window reference 25 (0.80)
- Window reference 26 (0.80)
- Window reference 27 (0.80)
- Half glazed door reference 28 (0.80)
- Half glazed door reference 29 (0.80)

Use of the following low carbon or renewable technologies:

- Wood pellets in bulk used for main heating (system 1)
- Photovoltaic array



Authorised SAP Assessor