

# Energy Statement Energy and Carbon Reduction Moorthorpe Way, Owlthorpe

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### **Company Profile**

FES Group was established in 2006, as a Building Surveying firm specialising in sustainable design and construction. Since then, the company has expanded and developed a nationwide footprint becoming one of the leading sustainability and Part L compliance consultancies in the UK marketplace along with adding testing services to our extensive suite of works. With offices in London and York we are a one stop dependable partner providing surveying and technical services for construction projects. Our key services include:

- Energy Strategy Studies
- Compliance Assessments
- BREEAM Assessments
- Code for Sustainable Homes Assessments
- Building Surveys
- Design Services
- Testing Services

We work with a range of clients including national and regional house builders, construction contractors, architects, M&E consultants, town planners and commercial developers. Our work varies from large scale well known projects to smaller individual projects adapting to each projects needs and requirements.



### Introduction

This report has been prepared by the FES Group on behalf of Avant Homes Central to accompany the planning application for the proposed development known as Moorthorpe Way, Owlthorpe.

The development proposals will see the construction of 74 new dwellings, consisting of a mix of detached, semi-detached, and terraced dwellings.

This report reviews the proposed energy and carbon reduction strategy advanced by Avant Homes Central within the context of local and national planning policy. The report in particular considers and evaluates the measures incorporated into the design of the development to reduce the predicted CO<sub>2</sub> consumption of the site equal to a 20% improvement over 2013 building regulations under SAP2012, at least 10% to be offset through the use of renewable energy.

The following documents were considered when formulating the report:

- National Planning Policy Framework 2012 The NPPF strengthens the emphasis on sustainable development and encourages Local Authorities to adopt standards consistent with the Government's zero carbon building policy and other nationally described standards.
- **Building Regulations Part L1A 2013** Approved Document L1A 2013 Conservation of Fuel and Power in new dwellings sets minimum energy efficiency and fabric efficiency standards for all new domestic buildings.
- Planning Policy CS65 Sheffield City Council –

All significant developments will be required, unless this can be shown not to be feasible and viable, to:

- a. provide a minimum of 10% of their predicted energy needs from decentralised and renewable or low carbon energy; and
- b. Generate further renewable or low carbon energy or incorporate design measures sufficient to reduce the development's overall predicted carbon dioxide emissions by 20%. This would include the decentralised and renewable or low carbon energy required to satisfy (a).

The renewable or low carbon energy technologies must be operational before any new or converted buildings are occupied.



If it can be demonstrated that the required reduction in carbon emissions cannot be met through decentralised renewable or low carbon energy and/or design and specification measures, a contribution towards an off-site carbon reduction scheme may be acceptable.



### **Sustainable Design**

The building fabric, the building services and the management of a building broadly determine the energy use of a building. In understanding this, design teams can take measures to advance sustainable design from the earliest stages of a development. However sustainability is not limited to issues concerning energy consumption. Material selection, the protection of local environments, addressing flood risk and the health and wellbeing of future occupants are all issues requiring consideration. Addressing all these issues in an integrated and intelligent manner will result in truly sustainable developments.

#### **Material Selection**

Significant amounts of energy and natural resources are consumed in the production, transportation and disposal of building materials. Two issues are of significant importance in the procurement of materials: the environmental impact of materials and the sourcing of materials. Avant Homes Central is dedicated to taking pro-active measures to addressing these issues.

Table 1- Green Guide Rating of Specification

	BRE Green Guide Rating
External Wall	A+
Ground Floor	В
Intermediate Floor	С
Roof	A+
Internal Walls	А
Windows	А

The developer will choose materials which have a lesser environmental impact. This will be implemented during the procurement process. Suppliers will be obliged to produce Environmental Management System certificates covering the sourcing and production of materials. Timber or timber composite products will be sourced from responsible sources. Suppliers will be obliged to provide full Chain of Custody Certificates right through the supply chain; from the initial timber yard, manufacturing process, transformation and distribution. Secure certificates must be produced by valid accrediting bodies – FSC, PEFC, CSA, SFI & MTCC.



#### Flood Risk

Planning Policy Statement 25 and the Flood and Water Management Act 2010, directs developers to avoid, reduce and delay the discharge of rainfall to public sewers and watercourses through the use of Sustainable Urban Drainage Systems (SUDS) with the aim of protecting watercourses and reducing the risk of localised flooding and pollution.

This obligation is taken seriously:

- Where possible, impermeable surfaces are kept to a minimum, thus allowing for maximum infiltration (e.g. permeable paving)
- Sustainable Drainage Systems will be incorporated where feasible and will be designed in line with the guidance published in the CIRIA SUDS Manual (2007)

### **Pollution during Construction**

The contractor will be required, under the terms of their contract, to minimise dust, fumes, discharges and any other form of pollution on site, in line with best practice policies:

• The Control of Dust and Emissions from Construction & Demolition: Best Practice Guidance.

The sustainable management and monitoring of waste generated during the construction of a development is a major concern to local and national planners. Due to the size and anticipated construction costs the developer will not be required by regulations to implement a Site Waste Management Plan. Furthermore the site will be too small to allow the successful segregation of waste on site in line with Best Practice policies. However the contractor will be obliged to adopt many of the principles of the waste hierarchy:

- Accurate specifications of materials and volumes.
- Recycling and re-use of waste on site.
- Arrange take back schemes with suppliers.
- Instruct a licensed waste contractor to segregate site waste for recycling.

#### **Health and Wellbeing**

In achieving ever stricter levels of energy efficiency, it is important that designers do not lose sight of the fact that they are building homes that people can live in and not just occupy. This is an integral part of sustainability, and a hugely important consideration if the population (and the market place) is to tolerate the sustainability agenda.

While it is quite difficult to measure or even quantify health and wellbeing, the following measures are a sample of the efforts made by Avant Homes Central to address this issue:

- The proposed properties will have sufficient living/dining space. While this is obviously a marketing consideration, it does fall within this category.
- The principal living rooms have sufficient glazing to allow natural light to penetrate into the rooms. Numerous studies have shown this to be beneficial to the general



health and happiness of occupants. Daylighting calculations can be undertaken to demonstrate that living rooms, dining rooms, kitchen and home offices receive adequate daylighting.

- The property will benefit from a garden or private space for recreation. This will take the form of secure rear gardens to each property.
- The property has dedicated internal recycling facilities and accessible external storage in line with the local council waste and recycling collection scheme.

### **Water Efficiency**

The average person consumes some 150 litres per day; this represents an annual increase of 1% since the 1930s. Despite the United Kingdom's wet and temperate climate, climate change will most probably result in an increase in the occurrence of drought orders and hosepipe bans. With this in mind, it is not difficult to appreciate that within the next few decades the UK (particularly the South East) will face regular water shortages. In response to this water efficiency has gained equal billing, alongside energy efficiency. The following are the principle policy drivers.

- The new Approved Document G (2015) restricts new build dwellings to a maximum consumption of 125 litres per person per day. The Water Efficiency Calculator of New Dwellings also includes an allowance for external water use.
- Part L 2013 and SAP 2012 will take account of Part G and water consumption in the calculation of the forecasted energy demand of a dwelling.



The below table details the recommended sanitary ware fittings to be adopted by Avant Homes Central to meet with the requirement to achieve 125 Litres per person per day as required by Building Regulations Part G 2010.

Table 2 – Water Consumption

Installation Type	Unit of Measurement	Capacity/Flow Rate	Use Factor	Fixed Use	Litres Per Person Per Day
WC (Dual Flush)	Full Flush (litres)	4	1.46	0.00	5.84
	Part Flush (litres)	2.6	2.96	0.00	7.70
Taps (excluding kitchen tap)	Flow rate (litres/minute)	6	1.58	1.58	11.06
Baths (where shower present)	Capacity to overflow (litres)	140	0.11	0.00	15.40
Showers (where bath present)	Flow rate (litres/minute)	9	4.37	0.00	39.33
Kitchen sink tap	Flow rate (litres/minute)	6	0.44	10.36	13.00
Washing Machine	Litres/kg dry load	8.17	2.1	0.00	17.16
Dishwasher	Litres/place setting	1.25	3.60	0.00	4.50
	TOTAL				113.99

Total Internal Water	113.99
Consumption	
Normalisation Factor	0.91
Water Consumption with	103.73
Normalisation Factor	
External Use	5.00
Part G Water Consumption	108.73



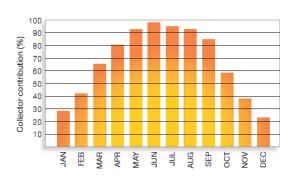
### **Renewable Technologies**

There are a number of recognised renewable technologies which have the potential to reduce the energy consumption of a dwelling. However given the nature of the development, we judge that only three technologies are worthy of consideration;

- Solar thermal panels.
- Photovoltaic panels.
- Air source heat pumps.

#### **Solar Thermal**

Solar thermal panels use radiant solar energy to heat water for domestic consumption. The system works successfully across the UK as they can work in diffuse weather conditions. In comparison to other technologies it is considered a reliable and proven technology. The system works most efficiently when the panel or evacuated tube is mounted on a 10-60°



pitch facing due south, though other combinations do work successfully. During late spring to early autumn months, the system can be expected to meet some 70-90% of a dwellings domestic hot water needs.

Most systems in the UK are two panel systems, typically 4 sq m in size and accompanied with a 180-250 litre cylinder with a dedicated solar storage capacity of 65-110 litres. The typical installation costs for solar thermal vary, especially when large volumes are considered. However a rough estimate is £3500 per plot. Occupants can expect annual savings in the region of £50-85 per year, which is relatively modest. Solar thermal panels do not qualify for feed in tariffs, however it is expected that solar thermal systems will benefit from the Renewable Heat Incentive. A 20-25 year payback can be expected, dependent on usage and dwelling type.

Taking into consideration the proposed house, the site layout and orientation a two panel systems is most likely.



#### **Photovoltaic**

Photovoltaic panels convert sunlight into electricity for use within a dwelling. PV panels use cells to convert light into electricity. A PV cell usually consists of 1 or 2 layers of a semi-conducting material such as silicon. The greater the intensity of sunlight, the more electricity is generated. PV systems can come in different forms. The most aesthetically pleasing are PV tiles which resemble roof tiles. However the



most popular are modules which can either sit on the roof or be integrated into it. The technology is most efficient when oriented due south. However panels orientated south of east or west are suitable. Generally panels orientated away from due south require a greater surface area to generate a set amount of energy.

It is recommended that a PV array installed on a select number of plots across a development is the most cost effective solution to a site wide CO<sub>2</sub> reduction. As a result we recommend this technology for consideration.

### **Air Source Heat Pumps**

Air source heat pumps extract heat from the outside air. The heat is absorbed into a fluid,

which is pumped through a heat exchanger. Low grade heat is then extracted by the refrigeration system and after passing through the compressor is concentrated into a higher temperature. This energy is then used to heat water for space and hot water use within the dwelling. While heat pumps use national grid electricity, and so are not a renewable resource, they utilise a heat source which is naturally renewed in our environment and so are considered a low carbon technology.



Heat pumps have stated CoPs in the region of 2-4, though test results outside of the laboratory have produced mixed results. Typically the heat pump is located on an external wall. It is generally accepted that 1kW in heat pump size will provide enough heating for  $20m^2$  of floor space

While the use of heat pumps reduces the energy consumption of a dwelling (when gas is considered the baseline), the carbon benefit is minimal as electricity has a much higher carbon factor than gas. In addition to this there has been varying anecdotal evidence across



the country which suggests differing models are achieving mixed levels of performance. As such we would not recommend this technology as the preferred route to compliance.



### **Energy Strategy**

### **The Context**

The proposed works fall under the scope of Approved Document L1A 2013. The Approved Document sets minimum fabric energy efficiency standards and a maximum  $CO_2$  emission rate for residential buildings. To place the proposed energy strategy into its correct regulatory context it is worthwhile summarising the minimum standards included in the Approved Document.

Table 3 – Minimum Fabric Efficiency Standards

Element	Part L1A 2013 Minimum Standard
External Walls	0.30W/m <sup>2</sup> K
Roof	0.20W/m <sup>2</sup> K
Floor	0.25W/m <sup>2</sup> K
Glazing & Doors	2.00W/m <sup>2</sup> K
Air Test	10m³/h.m² at 50Pa



### **Proposed Strategy**

The National Planning Policy Framework requires that all development proposals are in line with the Government's zero carbon buildings programme.

The figures and calculations detailed in this report have been taken from SAP 2012 (2013 building regulations).

In response to this guidance, and recent shifts within the industry, Avant Homes Central proposes the adoption of a fabric first energy strategy which addresses the core policy goals of sustainable construction:-

- Reduced CO<sub>2</sub> emissions to combat the causes of **climate change**.
- Reduced energy consumption to address legitimate concerns of energy security.

By reducing the energy requirement of the building, the sustainable credentials of each development are enhanced and are not validated by simply bolting on expensive renewable equipment. By focusing on fabric performance and the provision of efficient heating systems each dwelling is intrinsically "green".

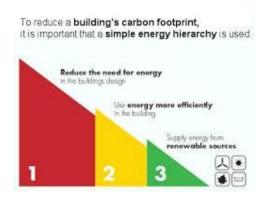
Before the potential of various technologies can be assessed, it is first necessary to calculate the base line energy consumption of the development and hence the target reduction. The proposed dwellings were modelled in SAP2012 to determine the energy consumption and corresponding CO<sub>2</sub> emissions of the development. Standard Assessment Procedure, or SAP, is the Government's approved methodology for the calculation of energy consumption and CO<sub>2</sub> emissions for new build dwellings.

In line with best practice the proposed energy strategy for Moorthorpe Way, Owlthorpe will adhere to the principles of the Energy Hierarchy;

- Be Lean reduce the need for energy.
- **Be Clean** supply and use energy in the most efficient manner.
- Be Green supply energy from renewable sources.

The Energy Hierarchy





Adhering to the principles of the Energy Hierarchy has a number of benefits. The principle benefits are;

- By reducing the energy requirement of each dwelling the renewable requirement shrinks in proportion. This has obvious cost benefits.
- The sustainable credentials of each development are enhanced and are not validated by simply bolting on expensive renewable equipment. By focusing on the fabric performance and the provision of efficient heating systems each dwelling is intrinsically "green".



### **Establishing a Baseline**

To adequately ascertain the potential of Avant Homes Central's preferred strategy, a baseline energy consumption associated with the development must be calculated. As such the development was modelled in SAP 2012 to determine the current  $CO_2$  emission and associated energy requirement prior to the incorporation of improved fabric efficiencies and renewable technologies. The table below summarises the results calculated.

Table 4 − Baseline Energy Consumption & CO<sub>2</sub> Emission Rate

House Type	No	Baseline Emission Rate (kg/year)	Baseline Energy Requirement (kWh/year)
House Type - Chesham - DET	4	11,518.85	49,904.32
House Type - Denbury - DET	2	4,115.33	17,592.73
House Type - Easton - DET	6	9,779.60	41,690.61
House Type - Finsbury - DET	2	4,214.42	18,051.48
House Type - Haddington - DET	1	1,701.96	7,245.73
House Type - Haddington - SEMI	6	9,588.58	40,590.94
House Type - Helmsdale - END	2	2,690.75	11,335.36
House Type - Helmsdale - MID	2	2,487.60	10,373.82
House Type - Kinnerton - DET	3	5,237.39	22,344.75
House Type - Lathbury - DET	7	15,059.88	64,460.31
House Type - Napsbury - DET	8	20,265.89	87,405.93
House Type - Nithsdale - END	4	6,238.44	26,352.38
House Type - Nithsdale - MID	2	2,898.10	12,139.19
House Type - Paignton - MID	2	3,442.36	14,451.03
House Type - Paignton - SEMI	2	3,765.86	15,963.73
House Type - Ramsbury - DET	3	6,952.67	29,827.67
House Type - Seaton - SEMI/END	4	7,608.73	32,318.70
House Type - Sudbury - DET	9	23,053.06	99,548.33
House Type - Weydale - SEMI/END	4	6,846.76	28,948.17
House Type - Weydale - MID	1	1,602.62	6,724.42
TOTAL	74	149,068.86	<u>637,269.61</u>

The table above confirms the proposed shared ownership plots at Moorthorpe Way, Owlthorpe has an energy requirement of **637,269.61 kWh/year** and an associated CO<sub>2</sub> emission rate of **149,068.86 kg/year**.



### **Fabric and Building Services Specification**

Avant Homes Central propose a series of fabric and building service enhancements that exceeds the minimum requirements of Part L1A 2013. By placing a significant emphasis on the performance of the fabric of each property, reductions in energy and carbon will be achieved. The following table details the anticipated fabric efficiency and building services standards to be incorporated into the design. These measures constitute the **lean** efforts.

Element	Part L1A 2013	<b>Enhanced Specification</b>
Wall	0.30W/m <sup>2</sup> K	0.24 W/m <sup>2</sup> K
Roof	0.20W/m <sup>2</sup> K	0.11 W/m <sup>2</sup> K
Floor	0.25W/m <sup>2</sup> K	0.14-0.17 W/m <sup>2</sup> K
Glazing & Doors	2.00W/m <sup>2</sup> K	1.30 W/m <sup>2</sup> K
Air Test	10m³/h.m² at 50Pa	5.00m <sup>3</sup> /h.m <sup>2</sup> at 50Pa

Table 5 – Enhanced Specification Summary & Comparison

The U values above show that the minimum requirements of Part L1A have been exceeded.

In addition to the summary above the following additional measures will be incorporated into the design, constituting the **clean** measures to reduce energy consumption;

- Avant Homes Central have adopted a set of Airecrete Product Association thermal bridging details which is being implemented on the site. These reduce thermal bridging throughout junctions and penetrations through the building fabric, typically producing a dwelling Y-value of between 0.03 and 0.06, these equal approximately a 60% improvement over the Governments ACD details.
- Efficient independent heating systems will be provided with a programmer, room thermostats and thermostatic radiator values. These will allow the eventual occupants to exercise control over their heating system and thus reduce energy consumption.
- Energy efficient lamps will be installed in each light fitting.
- Water consumption is now included in the calculation of a property's energy consumption. Thus each property will adhere to the requirements of Approved Document G— maximum internal water consumption of 125 litres per person per day.

It is clear that the proposed strategy places a great importance on the efficiency of a buildings thermal envelope and internal building services. This emphasis is to be



encouraged. It recognises that it is inherently more sustainable to invest resources in reducing a property's long term energy consumption in contrast to short term generation benefits.



### **Reduced Emission Rate & Energy Requirement**

To determine the benefits of the proposed specification, the development was again modelled in SAP 2012. The table below summarises the results calculated.

Table 6 – Reduced Emission Rate & Energy Requirement

House Type	No	Reduced Emission Rate (kg/year)	Reduced Energy Requirement (kWh/year)
House Type - Chesham - DET	4	11,473.03	49,070.58
House Type - Denbury - DET	2	3,912.13	16,436.87
House Type - Easton - DET	6	9,426.83	39,612.35
House Type - Finsbury - DET	2	3,956.26	16,651.64
House Type - Haddington - DET	1	1,612.06	6,749.75
House Type - Haddington - SEMI	6	9,206.29	38,331.55
House Type - Helmsdale - END	2	2,610.60	10,824.36
House Type - Helmsdale - MID	2	2,443.38	10,032.88
House Type - Kinnerton - DET	3	4,972.34	20,874.17
House Type - Lathbury - DET	7	14,241.31	59,857.67
House Type - Napsbury - DET	8	19,598.75	83,389.72
House Type - Nithsdale - END	4	5,953.66	24,746.89
House Type - Nithsdale - MID	2	2,799.26	11,534.00
House Type - Paignton - MID	2	3,276.05	13,476.62
House Type - Paignton - SEMI	2	3,622.34	15,097.53
House Type - Ramsbury - DET	3	6,605.66	27,832.56
House Type - Seaton - SEMI/END	4	7,249.08	30,244.49
House Type - Sudbury - DET	9	22,297.22	94,858.83
House Type - Weydale - SEMI/END	4	6,500.88	27,004.52
House Type - Weydale - MID	1	1,538.75	6,342.28
TOTAL	74	<u>143,295.89</u>	<u>602,969.25</u>

The calculations summarised in the table above confirm a reduced energy requirement of **602,969.25 kWh/year** and an associated emission rate of **143,295.89 kgCO₂/year**. These are respectively **5.38%** and **3.87%** reductions over the baseline calculated previously.

In order to comply with the planning requirements, it is necessary for this development to show measures have been taken to ensure high energy efficiency and best practice with regards to energy consumption.



### **Proposed Solution**

To satisfy the requirements of achieving a 20% carbon reduction, Avant Homes Central proposes the incorporation of PV panels to a portion of the development. The technology can be justified on the following grounds:-

- PV is a proven and reliable LZC technology.
- There is sufficient roof space to accommodate the technology.

The Planning Condition requires the incorporation of sufficient solar panels to generate a minimum of 20% on-site emissions. In order to comply with this Avant Homes Central must offset a total of **29,813.77 kg/year**.

A total CO<sub>2</sub> reduction after fabric first improvements have been applied reduces CO<sub>2</sub> on the site by **5,772.97 Kg/year.** This figure is 3.87% of the site wide emissions.

Avant Homes Central will be required to supply a suitably sized PV array across the site capable of generating at least **24,040.08 kg/year.** This figure is 16.13% of the site wide emissions calculated post fabric improvement.

The above figure can also be converted into kWh/year as follows.

24,040.08 / 0.519 =46,320.00 kWh/year.



### **Evaluation**

The FES Group was instructed by Avant Homes Central to review the performance of the proposed Energy Strategy for the development at Moorthorpe Way, Owlthorpe. The energy strategy was detailed previously but can be best summarised as follows;

- Avant Homes Central proposes an energy strategy, which addresses the two policy concerns of sustainable design and construction: climate change and energy security.
- Avant Homes Central has proposed a fabric first strategy, which aims to achieve long term reductions in CO<sub>2</sub> emissions and climate change.
- The proposed fabric and building services specification will permanently reduce emissions by **3.87**% and the proposed energy demand by **5.38**% This is a significant betterment and demonstrates that the proposed development will have a reduced reliance on national resources (gas and electricity)
- In order to address the planning requirements, renewable technologies have been proposed capable of offsetting 16.13% emissions of the shared ownership plots. This will be achieved through the installation of a suitably sized solar P.V. array capable of generating 24,040.08 kg/year or 46,320.00 kWh/year.

After detailed analysis we can conclude that the preferred energy strategy adheres to the principles and aspirations of sustainable design and construction as advanced by national and local government and the house building industry. We therefore recommend the adoption of the preferred energy strategy by Avant Homes Central.



### Appendix A



Property Reference	007780-111	- Chesham	- Det				ued on Da		12/2019
Assessment Reference	As Designed	As / Opp			Prop Type	e Ref 0077	780-SAP-Ch	esham-D_D	S
Property	Plot , Moort	horpe Way	, Owlthorpe						
SAP Rating			84 B	DER	1	7.53	TER		17.60
Environmental			83 B	% DER <ter< td=""><td></td><td></td><td>0.39</td><td></td><td></td></ter<>			0.39		
CO₂ Emissions (t/yea	ar)		2.68	DFEE	59	9.87	TFEE		67.57
General Requiremen	nts Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td>11.39</td><td>١</td><td></td></tfe<>	E		11.39	١	
	Mr. George Lead george.leadley@		-	01904 656271,			Assessor I	D P71	9-0001
Client	Avant Homes Co	entral				<u> </u>			
SUMMARY FOR INPL	JT DATA FOR: N	ew Build (As	Designed)						
Orientation		East							
Property Tenure		Unknown							
Transaction Type		New dwellir	ng						
Terrain Type		Suburban							
1.0 Property Type		House, Deta	ched						
2.0 Number of Storeys		2							
3.0 Date Built		2018							
4.0 Sheltered Sides		2							
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements		2 Average or 1	unknown						
5.0 Sunlight/Shade 6.0 Measurements		Average or u		<b>Heat Loss Perim</b> 46.43 m 39.41 m	_	<b>ernal Floor</b> 71.78 m <sup>2</sup> 91.84 m <sup>2</sup>		verage Stor 2.87 ( 2.36 (	m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area		Average or u	round Floor: 1st Storey:	46.43 m	eter Int	71.78 m²		2.87	m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter	Average or u  G  45.90  Precise calculations	round Floor: 1st Storey:	46.43 m	m²	71.78 m²		2.87	m
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Para  Thermal Mass	meter	Average or u	round Floor: 1st Storey:	46.43 m	_	71.78 m²		2.87	m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter Type	Average or u  45.90  Precise calculations and u  137.31	round Floor: 1st Storey:	46.43 m	m²	71.78 m²		2.87	m m
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls		Average or of 45.90  Precise calculation 137.31  Con	round Floor: 1st Storey:  ulation  struction  ity wall : plasterbo	46.43 m 39.41 m	m² kJ/m²K	71.78 m² 91.84 m²	Карра	2.87 ( 2.36 )	m m
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description	Туре	Average or u  45.90  Precise calculation and the calculation are calculated as a calculation and calculation are calculated as a calculation and calculation are calculated as a calculated as	round Floor: 1st Storey:  ulation  struction  ity wall : plasterbo	46.43 m 39.41 m	m² kJ/m²K	71.78 m <sup>2</sup> 91.84 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.87 (2.36 ) Gross Area (m²)	m Nett Area (m²)
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall	<b>Type</b> Cavity Wal  Solid Wall	Average or u  45.90  Precise calculation and the calculation are calculated as a calculation and calculation are calculated as a calculation and calculation are calculated as a calculated as	round Floor: 1st Storey:  ulation  ustruction  ity wall : plasterbook ity, any outside sti d wall : plasterbook	46.43 m 39.41 m	m² kJ/m²K	71.78 m² 91.84 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.87 (2.36)  Gross Area (m²) 189.77	Nett Area (m²) 155.92
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls	Type  Cavity Wall  Solid Wall	Average or u  45.90  Precise calculation and the calculation are calculated as a calculation and calculation are calculated as a calculation and calculated as a calculation are calculated as a calculated as	round Floor: 1st Storey:  ulation  struction  ity wall : plasterbot ity, any outside stid d wall : plasterbot side structure	46.43 m 39.41 m	m² kJ/m²K	71.78 m² 91.84 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.87 (2.36 (	Nett Area (m²) 155.92 32.34
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description	Type  Cavity Wall  Solid Wall  Cons  Plast Plast	Average or u  45.90  Precise calculation  Con  Cav  cavi  Soli  out:	round Floor: 1st Storey:  ulation  struction  ity wall : plasterbot ity, any outside structure  d wall : plasterbot side structure	46.43 m 39.41 m	m² kJ/m²K	71.78 m² 91.84 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.87 (2.36 (	Nett Area (m²) 155.92 32.34 Area (m²)
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description Ground Floor First Floor	Type  Cavity Wall  Solid Wall  Cons  Plast Plast	Average or u  45.90  Precise calculation  Con  Cav  cavi  Soli  out:  struction  terboard on time	round Floor: 1st Storey:  ulation  ulation  ity wall : plasterbookity, any outside structure  does not be structure	46.43 m 39.41 m	m² kJ/m²K	71.78 m² 91.84 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 9.00	2.87 (2.36 (2.36 (m²) (m²) (189.77 (kJ/m²K) 9.00 9.00 75.00 (Gross Area	Nett Area (m²) 155.92 32.34  Area (m²) 109.12 260.02 5.85
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block 10.0 External Roofs	Type  Cavity Wall  Solid Wall  Cons  Plast Plast Dens	Average or u  Average or u  45.90  Precise calcul  137.31  Con  Cav  cavi  Soli  out:  struction  terboard on time	round Floor: 1st Storey:  ulation  struction  ity wall : plasterbookity, any outside structure  side structure  aber frame rboard on dabs	and on dabs, AAC bructure and on dabs, insulat	m² kJ/m²K	71.78 m² 91.84 m²  U-Value (W/m²K) 0.24 0.32	Kappa (kJ/m²K) 60.00 9.00	2.87 (2.36 (	Nett Area (m²) 155.92 32.34  Area (m²) 109.12 260.02 5.85





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Description		Construction							Kappa (kJ/m²K)	Area (m²)
Ground Floor		Plasterboard ceiling,	board ceiling, carpeted chipboard floor						9.00	52.33
11.0 Heat Loss Flo	ors									
Description	Туре	Const	ruction					U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Groui	nd Floor - Solid Suspe	nded concrete	floor, carp	eted			0.16	75.00	71.78
Exposed Floor A	bove Garage Expos Timbe		er exposed floo	r, insulatio	n between jo	ists		0.15	20.00	39.50
11.2 Internal Floo Description	rs	Construction							Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling,	carpeted chipbo	oard floor					18.00	52.33
12.0 Opening Type	es									
Description	Data Source	Туре	Glazing		Glazing Gap	Argon Filled	G-valu	ie Frame Type	Frame Factor	U Value (W/m²K
Half Glazed Doo	r Manufacture r	e Half Glazed Door	Double Low-E	Soft 0.05		0.63			0.70	1.50
Patio Door	Manufacture r	e Window	Double Low-E	Soft 0.05			0.63		0.70	1.50
Window	Manufacture r	e Window	Double Low-E	Soft 0.05			0.63		0.70	1.30
Garage Door		2 Door to Corridor								1.50
13.0 Openings										
Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height Cou (m)	nt Area (m²)	Curtain Closed
Front Door	Half Glazed Door	[1] External Wall	East						2.86	
Front Window	Window	[1] External Wall	East	None	0.00				9.09	
LH Window	Window	[1] External Wall	South	None	0.00				1.41	
Rear Window	Window	[1] External Wall	West	None	0.00				6.72	
Rear Patio Door		[1] External Wall	West	None	0.00				12.36	
Front Garage Door	Door to Corridor	[2] Solid Garage Wall	East						1.86	
RH Window	Window	[1] External Wall	North	None	0.00				1.41	
14.0 Conservatory	/	None								
15.0 Draught Prod	ofing	100				%				
16.0 Draught Lobb	ру	No								
17.0 Thermal Brid	ging	Calculate Brid	dges							



17.1 List of Bridges



Source Type	Bridge Type	Length	Psi	Imported	
Table K1 - Approved	E1 Steel lintel with perforated steel base plate	0.89	0.500	No	
Independently assessed	E2 Other lintels (including other steel lintels)	21.08	0.050	No	
Independently assessed	E3 Sill	14.07	0.034	No	
Independently assessed	E4 Jamb	35.95	0.040	No	
Table K1 - Approved	E4 Jamb	4.20	0.050	No	
Independently assessed	E5 Ground floor (normal)	34.52	0.060	No	
Table K1 - Approved	E5 Ground floor (normal)	11.91	0.160	No	
Table K1 - Default	E20 Exposed floor (normal)	13.44	0.320	No	
Table K1 - Default	E21 Exposed floor (inverted)	11.91	0.320	No	
Independently assessed	E6 Intermediate floor within a dwelling	25.97	0.000	No	
Independently assessed	E10 Eaves (insulation at ceiling level)	18.19	0.123	No	
Table K1 - Default	E24 Eaves (insulation at ceiling level - inverted)	7.11	0.240	No	
Independently assessed	E12 Gable (insulation at ceiling level)	21.78	0.063	No	
Table K1 - Default	E14 Flat roof	12.10	0.080	No	
Independently assessed	E16 Corner (normal)	27.30	0.058	No	
Table K1 - Approved	E16 Corner (normal)	5.74	0.090	No	
Independently assessed	E17 Corner (inverted – internal area greater than external area)	11.93	-0.069	No	
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	2.87	-0.090	No	
Y-value	0.052		W/m²K		
18.0 Pressure Testing	Yes				
Designed AP <sub>50</sub>	5.00		m³/(h.r	n²) @ 50 Pa	
Property Tested ?					
As Built AP <sub>50</sub>			m³/(h.r	n²) @ 50 Pa	
19.0 Mechanical Ventilation	1				

#### **Summer Overheating**

Windows fully open Windows open in hot weather Cross ventilation possible Yes Night Ventilation No 8.00 Air change rate

#### **Mechanical Ventilation**

Mechanical Ventilation System Present

Approved Installation

MV Reference Number

Mechanical Ventilation data Type

Туре

Duct Type

Yes
No
Database
Mechanical extract ventilation - decentralised
500230
Eloviblo

### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Count
	Туре	
0.16	Through Wall	1
	Fan Kitchen	
0.16	Through Wall	2
	Fan Other We	t
	Room	
0.18	In Room Fan	3
	Other Wet	
	Room	

20.0 Fans, Open Fireplaces, Flues



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	MHS	SHS	Other	Total	
Number of Chimneys	0		0	0	
Number of open flues	0		0	0	
Number of intermittent fans Number of passive vents				0	
Number of flueless gas fires				0	
21.0 Fixed Cooling System	No			]	
22.0 Lighting					
Internal					
Total number of light fittings	17			]	
Total number of L.E.L. fittings	17				
Percentage of L.E.L. fittings	100.00			%	
External				1	
External lights fitted	No			]	
23.0 Electricity Tariff	Standard			]	
24.0 Main Heating 1	Database				
Percentage of Heat	100			%	
Database Ref. No.	18580				
Fuel Type	Mains gas				
Main Heating	BGB				
SAP Code	102				
In Winter	90.1				
In Summer	79.4				
Controls	CBI Time and t	emperature zo	ne control		
PCDF Controls	0				
Delayed Start Stat	Yes				
Sap Code	2110				
Flue Type	Balanced				
Fan Assisted Flue	Yes				
Is MHS Pumped	Pump in heate	d space			
Heat Emitter	Radiators				
Flow Temperature	Normal (> 45°C	C)		]	
25.0 Main Heating 2	None			]	
Community Heating	None				
28.0 Water Heating	HWP From ma	in heating 1			
Water Heating	Main Heating 1				
Flue Gas Heat Recovery System	No				
Waste Water Heat Recovery	No				
Instantaneous System 1					



Water use <= 125 litres/person/day

Waste Water Heat Recovery Instantaneous System 2 Waste Water Heat Recovery

Storage System

Solar Panel

No

No

No

Yes

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SAP Code	901	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	170.00	L
Loss	1.20	kWh/day
Pipes insulation	Fully insulated primary pipework	
31.0 Thermal Store	None	

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings after improvement		
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>	
Solar water heating	£4,000 - £6,000	£42	B 85		
	Typical Cost	Typical savings	Ratings a	fter improvement	
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>	
Solar photovoltaic panels, 2,5 kWp	£3.500 - £5.500	£303	B 91		





Property Reference	007780 - H	Γ - Denbur	v - Det				Issue	d on Da	te 05/1	12/2019
Assessment	As Designed		,		Prop T	ype Ref			nbury-D DS	
Reference						, ,			· -	
Property	Plot , Moor	thorpe Wa	ay , Owlthorpe							
SAP Rating			84 B	DER		16.75	TE	R		17.62
Environmental			85 B	% DER <ter< td=""><td></td><td></td><td></td><td>4.93</td><td></td><td></td></ter<>				4.93		
CO₂ Emissions (t/yea	r)		1.78	DFEE		53.15	TF	EE		59.00
General Requiremen	ts Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td></td><td>9.92</td><td></td><td></td></tfe<>	E			9.92		
	Mr. George Lea george.leadley(		-	: 01904 656271,			As	sessor I	D P71	9-0001
	Avant Homes C									
SUMMARY FOR INPU	T DATA FOR: N	lew Build (	(As Designed)							
Orientation		East								
Property Tenure		Unknown			=					
Transaction Type		New dwe								
Terrain Type		Suburbar			=					
1.0 Property Type		House, D								
2.0 Number of Storeys		2								
3.0 Date Built		2018			=					
4.0 Sheltered Sides		2			=					
5.0 Sunlight/Shade		Average	or unknown		=					
C O B4										
6.0 Measurements				Heat Loss Perim	eter	Internal F	loor A	rea A	verage Stor	ev Height
6.0 Measurements			Ground Floor:	Heat Loss Perimo	eter	Internal F 58.3	Floor A	rea A	verage Stor 2.38	-
6.0 Measurements			Ground Floor: 1st Storey:		eter	58.3		rea A	_	m
6.0 Measurements  7.0 Living Area		20.15		32.22 m	eter m²	58.3	9 m²	rea A	2.38	m
	neter			32.22 m		58.3	9 m²	rea A	2.38	m
7.0 Living Area	neter		1st Storey:	32.22 m		58.3 58.3	9 m²	rea A	2.38	m
7.0 Living Area 8.0 Thermal Mass Param	neter	Precise ca	1st Storey:	32.22 m	m²	58.3 58.3	9 m²	rea A	2.38	m
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass	neter	Precise ca	1st Storey:	32.22 m	m²	58.3 58.3	9 m² 9 m² alue	rea A Kappa (kJ/m²K)	2.38	m m
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls		Precise ca 186.16	1st Storey:	32.22 m 32.22 m	m²	58.3 58.3 K	9 m <sup>2</sup> 9 m <sup>2</sup> alue m <sup>2</sup> K)	Карра	2.38 ( 2.70 )	m m Nett Area
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description	Туре	Precise ca 186.16	1st Storey:  alculation  Construction  Cavity wall: plaster	32.22 m 32.22 m	m²	58.3 58.3 K	9 m <sup>2</sup> 9 m <sup>2</sup> alue m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 (2.70 )	m M Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall	<b>Type</b> Cavity Wa	Precise ca 186.16	1st Storey:  alculation  Construction  Cavity wall: plaster	32.22 m 32.22 m	m²	58.3 58.3 K	9 m <sup>2</sup> 9 m <sup>2</sup> alue m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 (2.70 )  Gross Area (m²) 163.82	Nett Area (m²) 136.12
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description External Wall	Type Cavity Wa	Precise ca 186.16	1st Storey:  alculation  Construction  Cavity wall: plaster	32.22 m 32.22 m	m²	58.3 58.3 K	9 m² 9 m² alue m²K)	Kappa (kJ/m²K)	2.38 (2.70)  Gross Area (m²) 163.82	Nett Area (m²) 136.12
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description	Type  Cavity Wa  Con	Precise ca 186.16	alculation  Construction  Cavity wall : plaster cavity, any outside s	32.22 m 32.22 m	m²	58.3 58.3 K	9 m² 9 m² alue m²K)	Kappa (kJ/m²K)	2.38 (2.70 (	Nett Area (m²) 136.12 Area (m²)
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor	Type  Cavity Wa  Con  Plas  Plas	Precise ca  186.16	alculation  Construction  Cavity wall : plaster cavity, any outside stimber frame	32.22 m 32.22 m	m²	58.3 58.3 K	9 m² 9 m² alue m²K)	Kappa (kJ/m²K)	2.38 (2.70 (	Nett Area (m²) 136.12 Area (m²) 72.12
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type  Cavity Wa  Con  Plas  Plas	Precise ca  186.16	alculation  Construction  Cavity wall : plaster cavity, any outside stimber frame timber frame	32.22 m 32.22 m	m²	58.3 58.3 K	9 m² 9 m² alue m²K)	Kappa (kJ/m²K)	2.38 (2.70 (	Nett Area (m²) 136.12 Area (m²) 72.12 186.46
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block	Type  Cavity Wa  Con  Plas  Plas	Precise ca  186.16	alculation  Construction  Cavity wall : plaster cavity, any outside stimber frame timber frame	32.22 m 32.22 m	m²	58.3 58.3 K (W/i	9 m² 9 m² alue m²K)	Kappa (kJ/m²K)	2.38 (2.70 (	Nett Area (m²) 136.12 Area (m²) 72.12 186.46 56.52
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description External Wall  9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block  10.0 External Roofs Description	Type  Cavity Wa  Con  Plas  Plas  Den	Precise ca  186.16	alculation  Construction  Cavity wall: plaster cavity, any outside:  timber frame timber frame sterboard on dabs  Construction	32.22 m 32.22 m board on dabs, AAC l	m²	58.3 58.3 K (W/i	alue m²K)	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.38 i 2.70 i 2.	Nett Area (m²) 136.12  Area (m²) 72.12 186.46 56.52  Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block  10.0 External Roofs Description  Cold Roof	Type  Cavity Wa  Con  Plas  Plas  Den	Precise ca  186.16	alculation  Construction  Cavity wall : plaster cavity, any outside : timber frame timber frame sterboard on dabs	32.22 m 32.22 m board on dabs, AAC l	m²	58.3 58.3 K U-Va (W/i	alue m²K)	Kappa (kJ/m²K) 60.00	2.38 (2.70 (	Nett Area (m²) 136.12  Area (m²) 72.12 186.46 56.52
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block  10.0 External Roofs Description  Cold Roof  10.2 Internal Ceilings	Type  Cavity Wa  Con  Plas  Plas  Den  Type  External P	Precise ca  186.16  II (c)  struction  terboard on ter	alculation  Construction  Cavity wall: plaster cavity, any outside:  timber frame timber frame sterboard on dabs  Construction	32.22 m 32.22 m board on dabs, AAC l	m²	58.3 58.3 K (W/i	alue m²K)	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.38 i 2.70 i 2.	Nett Area (m²) 136.12  Area (m²) 72.12 186.46 56.52  Nett Area (m²) 58.39
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block  10.0 External Roofs Description  Cold Roof	Type  Cavity Wa  Con  Plas  Plas  Den  Type  External P	Precise ca  186.16	alculation  Construction  Cavity wall: plaster cavity, any outside:  timber frame timber frame sterboard on dabs  Construction	32.22 m 32.22 m board on dabs, AAC l	m²	58.3 58.3 K (W/i	alue m²K)	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.38 i 2.70 i 2.	Nett Area (m²) 136.12  Area (m²) 72.12 186.46 56.52  Nett Area (m²)



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11.0 Heat Loss Floors  Description	Туре		Construction					U-Va (W/n		Kappa (kJ/m²K)	Area (m²)
Ground Floor	Groun	d Floor - Solid	Suspended concrete	floor, carp	peted			0.1	•	75.00	58.39
11.2 Internal Floors Description		Construction								Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard o	eiling, carpeted chipbo	oard floor						18.00	58.39
12.0 Opening Types  Description	Data Source	Туре	Glazing		Glazing Gap	g Argon Filled	G-valu		ame ype	Frame Factor	U Value (W/m²K)
Half Glazed Door		Half Glazed	Door Double Low-E	Soft 0.05	Gup	Tilled	0.63		урс	0.70	1.50
Patio Door	r Manufacture	Window	Double Low-E	Soft 0.05			0.63			0.70	1.50
Window	r Manufacture r	Window	Double Low-E	Soft 0.05			0.63			0.70	1.30
13.0 Openings											
Name Ope	ning Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang		Height (m)	Count	t Area (m²)	Curtain Closed
		[1] External W								3.80	
Front Window Wind		[1] External W		None	0.00					9.18	
Rear Window Wind		[1] External W		None	0.00					5.11	
Rear Patio Door Wind		[1] External W		None	0.00					8.89	
RH Window Wind	dow	[1] External W	all North	None	0.00					0.72	
14.0 Conservatory		None									
15.0 Draught Proofing		100				%					
16.0 Draught Lobby		No									
17.0 Thermal Bridging		Calcula	ite Bridges								
17.1 List of Bridges											
Source Type	Bridge				Length	Psi	Imported				
Independently assesse		er lintels (inclu	ding other steel lintels	5)	17.46	0.050	No				
Independently assesse					11.58	0.034	No				
Independently assesse					38.10	0.040	No				
Independently assesse		und floor (nor			32.22	0.060	No				
Independently assesse			within a dwelling		32.22	0.000	No				
Independently assesse			at ceiling level)		17.05	0.123	No				
Independently assessed Independently assessed		ne (insulation rner (normal)	at ceiling level)		15.16	0.063 0.058	No				
Independently assesse		rner (inverted	– internal area greater	r than	30.51 10.17	-0.069	No No				
Y-value		0.032				W/m²K					
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 Ventil	ation										
Summer Overheati											
Windows open		r \\/i	ndows fully open			$\neg$					
·						=					
Cross ventilation	n possible	Ye	5								



Night Ventilation
Air change rate

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No

8.00



calculation Type: IV	cw balla	י אל פראן	3igiica)		elmnurst energy
Mechanical Ventilation					
Mechanical Ventilation System Present	Yes				
Approved Installation	No				
Mechanical Ventilation data Type	Database			=	
Туре	Mechanical	extract ventila	tion -	<del></del>	
	decentralise	ed			
MV Reference Number	500230				
Duct Type	Flexible				
19.1 Mechanical extract ventilation - Dec	entralised				
SFP Fan/Room Count					
Туре					
0.16 Through Wall 1 Fan Kitchen					
0.16 Through Wall 2					
Fan Other Wet					
Room					
0.18 In Room Fan 2 Other Wet					
Room					
20.0 Fans, Open Fireplaces, Flues					
co.o rans, open meplaces, mes	MHS	SHS	Other	Total	
Number of Chimneys	0		0	0	
Number of open flues	0		0	0	
Number of intermittent fans				0	
Number of passive vents Number of flueless gas fires				0	
				7	
21.0 Fixed Cooling System	No				
22.0 Lighting					
Internal					
Total number of light fittings	15				
Total number of L.E.L. fittings	15			]	
Percentage of L.E.L. fittings	100.00			%	
External					
External lights fitted	No				
23.0 Electricity Tariff	Standard			]	
24.0 Main Heating 1	Database			7	
Percentage of Heat	100			<b>1</b> %	
Database Ref. No.	18493			Ī	
Fuel Type	Mains gas			Ī	
Main Heating	BGW			Ī	
SAP Code	104			Ī	
In Winter	89.9			Ī	
In Summer	86.7			Ī	
Controls	CBI Time and te	emperature zor	ne control	Ī	



Yes 2110

Yes

Balanced

PCDF Controls
Delayed Start Stat

Sap Code

Flue Type Fan Assisted Flue



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	

Community Heating	Maria	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 Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	None	

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical Cost		iter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£30	B 85	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 94	





Property Reference	007780 - HT	- Easton -	Det			Issu	ued on Dat	te 05/1	.2/2019
Assessment	As Designed	- As			Prop Type I	Ref 007	780-SAP-Eas	ston-D-DS	
Reference									
Property	Plot , Moort	horpe Way	y , Owlthorpe						
SAP Rating			83 B	DER	19.	24	TER		19.96
Environmental			85 B	% DER <ter< td=""><td></td><td></td><td>3.61</td><td></td><td></td></ter<>			3.61		
CO₂ Emissions (t/yea	ar)		1.43	DFEE	56.7	73	TFEE		60.88
General Requiremen	nts Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td>6.82</td><td></td><td></td></tfe<>	E		6.82		
	Mr. George Lea			01904 656271,			Assessor II	D P71	9-0001
	george.leadley@		oup.com						
Client	Avant Homes Co	entral							
SUMMARY FOR INPL	JT DATA FOR: N	ew Build (A	As Designed)						
Orientation		East							
<b>Property Tenure</b>		Unknown							
Transaction Type		New dwell	ling						
Terrain Type		Suburban							
1.0 Property Type		House, De	tached		7				
2.0 Number of Storeys		2			Ī				
3.0 Date Built		2018			Ħ				
4.0.011111					=				
4.0 Sheltered Sides		2							
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements		-	r unknown	Heat Loss Perimo	eter Inter	nal Floor	Area A	verage Stor	ey Height
5.0 Sunlight/Shade 6.0 Measurements		Average o		Heat Loss Perime 27.41 m 27.41 m	_	<b>nal Floor</b> 40.83 m² 40.83 m²		verage Stor 2.38 i 2.70 i	m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area		Average of	Ground Floor: 1st Storey:	27.41 m	eter Inter	40.83 m <sup>2</sup>		2.38 ו	m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter	Average of 33.80  Precise cal	Ground Floor: 1st Storey:	27.41 m	m²	40.83 m <sup>2</sup>		2.38 ו	m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area	meter	Average of	Ground Floor: 1st Storey:	27.41 m	_	40.83 m <sup>2</sup>		2.38 ו	m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter Type	33.80 Precise cal	Ground Floor: 1st Storey:	27.41 m	m²	40.83 m² 40.83 m² U-Value	Карра	2.38 I 2.70 I	m Mett Area
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls		33.80 Precise cal	Ground Floor: 1st Storey:	27.41 m 27.41 m	m² kJ/m²K	40.83 m <sup>2</sup>		2.38 i 2.70 i	m m
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description	Туре	33.80 Precise cal 196.21	Ground Floor: 1st Storey:  culation	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K)	Kappa (kJ/m²K)	2.38 i 2.70 i	n Nett Area (m²)
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall	<b>Type</b> Cavity Wal	33.80 Precise cal 196.21	Ground Floor: 1st Storey:   culation   culation   construction   avity wall : plasterboavity, any outside sti	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 i 2.70 i Gross Area (m²) 137.85	Nett Area (m²)
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Dormer Wall	<b>Type</b> Cavity Wal Timber Fra	33.80 Precise cal 196.21	Ground Floor: 1st Storey:   culation   culation   construction   avity wall : plasterboavity, any outside sti	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 i 2.70 i Gross Area (m²) 137.85	Nett Area (m²)
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Dormer Wall 9.2 Internal Walls Description Ground Floor	Type  Cavity Wal  Timber Fra  Cons	Average of	Ground Floor: 1st Storey:   culation   culat	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 3.7.85 0.15 Kappa (kJ/m²K) 9.00	Nett Area (m²) 114.20 0.15 Area (m²) 70.92
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Dormer Wall 9.2 Internal Walls Description Ground Floor First Floor	Type  Cavity Wal  Timber Fra  Cons  Plast Plast	Average of	Ground Floor: 1st Storey:   culation	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 3.7.85 0.15 Kappa (kJ/m²K) 9.00 9.00	Nett Area (m²) 114.20 0.15  Area (m²) 70.92 120.96
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Dormer Wall 9.2 Internal Walls Description Ground Floor	Type  Cavity Wal  Timber Fra  Cons  Plast Plast Dens	33.80  Precise cal 196.21  Ca me Ti struction  derboard on ti serboard on ti se block, plass	Ground Floor: 1st Storey:   culation   culat	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 3.7.85 0.15 Kappa (kJ/m²K) 9.00	Nett Area (m²) 114.20 0.15 Area (m²) 70.92
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Dormer Wall 9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block First Floor Block	Type  Cavity Wal  Timber Fra  Cons  Plast Plast Dens	33.80  Precise cal 196.21  Ca me Ti struction  derboard on ti serboard on ti se block, plass	Ground Floor: 1st Storey:  lculation  onstruction  avity wall : plasterboavity, any outside striction wall (of the content of	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 3.7.85 0.15 Kappa (kJ/m²K) 9.00 9.00 75.00	Nett Area (m²) 114.20 0.15  Area (m²) 70.92 120.96 30.05
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description External Wall Dormer Wall 9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block	Type  Cavity Wal  Timber Fra  Cons  Plast Plast Dens	Average of	Ground Floor: 1st Storey:  lculation  onstruction  avity wall : plasterboavity, any outside striction wall (of the content of	27.41 m 27.41 m	m² kJ/m²K	40.83 m² 40.83 m² U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 3.7.85 0.15 Kappa (kJ/m²K) 9.00 9.00 75.00	Nett Area (m²) 114.20 0.15  Area (m²) 70.92 120.96 30.05
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Dormer Wall 9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block First Floor Block 10.0 External Roofs	Type  Cavity Wal  Timber Fra  Cons  Plast Plast Dens Dens Type	33.80  Precise cal 196.21  Ca me Ti struction  derboard on ti	Ground Floor: 1st Storey:  lculation  onstruction  avity wall : plasterboavity, any outside striction wall (of the content of	27.41 m 27.41 m	m² kJ/m²K	U-Value (W/m²K) 0.24 0.30	Kappa (kJ/m²K) 60.00 9.00	2.38 t 2.70 t 2.	Nett Area (m²) 114.20 0.15  Area (m²) 70.92 120.96 30.05 3.78





Regs Region: England Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.12r02



Description		Construction								Kappa (kJ/m²K)	Area (m²)
Ground Floor		Plasterboard ceiling,	carpeted chipbo	oard floor						9.00	40.83
11.0 Heat Loss Floors  Description	Туре	Cons	struction					U-Va (W/n		Kappa (kJ/m²K)	Area (m²)
Ground Floor	Grour	nd Floor - Solid Susp	ended concrete	floor, car	peted			0.1	16	75.00	40.83
11.2 Internal Floors											
Description		Construction								Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling,	carpeted chipbo	oard floor						18.00	40.83
12.0 Opening Types											
Description	Data Source	Туре	Glazing		Glazing Gap	Argon Filled	G-valu		rame Type	Frame Factor	U Value (W/m²K
Half-Glazed Door	Manufacture r	Half Glazed Door	Double Low-E	Soft 0.05	-		0.63			0.70	1.50
Patio Door	Manufacture	Window	Double Low-E	Soft 0.05			0.63			0.70	1.50
Window	r Manufacture r	e Window	Double Low-E	Soft 0.05			0.63			0.70	1.30
13.0 Openings											
Name Open	ing Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	: Area (m²)	Curtain Closed
Front Door Half G	Glazed Door	[1] External Wall	East							2.86	
Front Window Wind		[1] External Wall	East	None	0.00					6.95	
RH Window Wind		[1] External Wall	North	None	0.00					4.89	
LH Patio Door Wind		[1] External Wall	South	None	0.00					7.11	
LH Window Wind	OW	[1] External Wall	South	None	0.00					1.84	
14.0 Conservatory		None									
15.0 Draught Proofing		100				%					
16.0 Draught Lobby		No									
17.0 Thermal Bridging		Calculate Br	idges								
17.1 List of Bridges											
Source Type	Bridge				Length		Imported				
Independently assessed Table K1 - Default		er lintels (including o			13.59	0.050	No				
Independently assessed		er lintels (including c	ither steer linters	)	1.36 10.43	1.000 0.034	No No				
Independently assessed		ıh			28.92	0.040	No				
Table K1 - Default	E4 Jam				0.78	0.100	No				
Independently assessed		und floor (normal)			27.41	0.060	No				
Independently assessed		ermediate floor withi	n a dwelling		27.41	0.000	No				
Independently assessed	d E10 Ea	ves (insulation at cei	ling level)		12.67	0.123	No				
Table K1 - Default	E10 Ea	ves (insulation at cei	ling level)		0.78	0.120	No				
Independently assessed		ves (insulation at raf	,		1.68	0.037	No				
Independently assessed		ble (insulation at cei	,		11.70	0.063	No				
Independently assessed		ble (insulation at raf	ter level)		0.96	0.080	No				
Independently assessed		rner (normal)			29.83	0.058	No				
		rner (inverted – inte al area)	ınaı area greatei	tnan	9.49	-0.069	No				
Independently assessed	extern				3.04	0.060	No				
Independently assessed Table K1 - Default	R6 Flat	ceiling									
Independently assessed Table K1 - Default Table K1 - Default	R6 Flat	ceiling ceiling (inverted)			1.36	0.040	No				
Table K1 - Default Table K1 - Default Y-value	R6 Flat	ceiling ceiling (inverted)									
Independently assessed Table K1 - Default Table K1 - Default	R6 Flat	ceiling ceiling (inverted)				0.040	No				



Regs Region: England Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.12r02



Property Teste	d ?				
As Built AP <sub>50</sub>					m³/(h.m²) @ 50 Pa
19.0 Mechanical V	entilation				
Summer Overh	neating				
	pen in hot weather	Windows	fully open		
	lation possible	Yes			
Night Vent		No			
Air change		8.00			
Mechanical Ve					<u> </u>
Mechanical '	Ventilation System Pro	esent Yes			
Approved I	nstallation	No			
	l Ventilation data T	ype Database			
Туре		Mechanica decentrali	al extract ventila	ation -	
MV Refere	nce Number	500230			
Duct Type		Flexible			
SFP	xtract ventilation - Fan/Room Co	Decentralised unt			
	Туре				
0.16	Through Wall 1				
0.16	Fan Kitchen				
0.16	Through Wall 1 Fan Other Wet				
	Room				
0.18	In Room Fan 1				
	Other Wet Room				
20.0 Fans, Open Fi	replaces, Flues	NALIC	CHC	Othor	Tatal
Number of Chi	mnevs	<b>MHS</b> 0	SHS	Other 0	<b>Total</b> 0
Number of ope		0		0	0
Number of inte					0
Number of pas					0
Number of flue	eless gas fires				0
21.0 Fixed Cooling	System	No			
22.0 Lighting					
Internal					
	per of light fittings	10			7
					<u></u>
	per of L.E.L. fittings	10			
_	e of L.E.L. fittings	100.00			%
External					
External lig	hts fitted	No			
23.0 Electricity Tar	iff	Standard			
24.0 Main Heating	1	Database			7
Percentage of I		100			
Database Ref. I		18204			<u>-</u>
Fuel Type		Mains gas			
Main Heating		BGW			
iriani i icaniig		150.0			1





SAP Code	104
In Winter	89.9
In Summer	86.7
Controls	CBI Time and temperature zone control
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

29.0 Hot Water Cylinder	None	
SAP Code	901	
Water use <= 125 litres/person/day	Yes	
Solar Panel	No	
Waste Water Heat Recovery Storage System	No	1
Instantaneous System 2	No	1
Waste Water Heat Recovery	No	
Waste Water Heat Recovery Instantaneous System 1	NO	
	No	
Flue Gas Heat Recovery System	No	
Water Heating	Main Heating 1	
28.0 Water Heating	HWP From main heating 1	
Community Heating	None	

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

Tunical Cost	Typical savings	Ratings after improvement			
Typical Cost	per year	SAP rating	<b>Environmental Impact</b>		
£4,000 - £6,000	£29	B 84			
Tunical Cost	Typical savings	Ratings a	fter improvement		
Typical Cost	per year	SAP rating	<b>Environmental Impact</b>		
£3,500 - £5,500	£303	A 94			
	Typical Cost	f4,000 - £6,000 £29  Typical Cost per year  Typical Savings per year	Typical Cost per year SAP rating  £4,000 - £6,000 £29 B 84  Typical Cost Typical savings Ratings a  per year SAP rating		





Property Reference	007780 - HT	- Finsbury	- Det			Issu	ued on Da	te 05/1	12/2019
Assessment	As Designed	•			Prop Type	Ref 0077	780-SAP-Fir	nsbury-D_DS	
Reference									
Property	Plot , Moort	thorpe Way	, Owlthorpe						
SAP Rating			84 B	DER	17	.47	TER		18.61
Environmental			85 B	% DER <ter< td=""><td></td><td></td><td>6.10</td><td></td><td></td></ter<>			6.10		
CO₂ Emissions (t/year)			1.81	DFEE	55.	.48	TFEE		62.48
General Requirements	s Compliance		Pass	% DFEE <tfee< td=""><td></td><td></td><td>11.22</td><td></td><td></td></tfee<>			11.22		
	Ir. George Lea eorge.leadley(	-	ge Leadley, Tel: up.com	01904 656271,			Assessor I	D P71	9-0001
Client	vant Homes C	entral	·						
SUMMARY FOR INPUT	DATA FOR: N	ew Build (A	As Designed)						
Orientation		East			1				
Property Tenure		Unknown			i				
Transaction Type		New dwell	ing		ĺ				
Terrain Type		Suburban			Ī				
1.0 Property Type		House, Det	tached		Ī				
2.0 Number of Storeys		2			Ī				
3.0 Date Built		2018			Ī				
4.0 Sheltered Sides		2			Ī				
5.0 Sunlight/Shade		Average or	unknown		j				
6.0 Measurements									
U.U IVICASUI CIIICIILS									
o.o ivicasui eiiielits				Heat Loss Perime	ter Inte	rnal Floor	Area A	verage Stor	ey Height
ס.ט ואוכמטעוכווולוונט		(	Ground Floor:	33.79 m	ter Inte	55.80 m <sup>2</sup>		2.72 ו	m
o.o ivicasurements		(			ter Inte			_	m
7.0 Living Area		29.58	Ground Floor:	33.79 m	ter Inte	55.80 m <sup>2</sup>		2.72 ו	m
	eter		Ground Floor: 1st Storey:	33.79 m	-	55.80 m <sup>2</sup>		2.72 ו	m
7.0 Living Area	eter	29.58	Ground Floor: 1st Storey:	33.79 m	-	55.80 m <sup>2</sup>		2.72 ו	m
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls		29.58  Precise calc  154.66	Ground Floor: 1st Storey:  culation	33.79 m	] m²	55.80 m <sup>2</sup> 57.43 m <sup>2</sup>		2.72 i 2.36 i	m m
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass	eter Type	29.58  Precise calc  154.66	Ground Floor: 1st Storey:	33.79 m	] m²	55.80 m <sup>2</sup> 57.43 m <sup>2</sup>		2.72 I 2.36 I	m m Nett Area
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls		29.58  Precise calc 154.66  Co	Ground Floor: 1st Storey:  culation  onstruction	33.79 m 32.22 m	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup>	Карра	2.72 i 2.36 i	m m
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description	Туре	29.58  Precise calc 154.66  Co	Ground Floor: 1st Storey:  culation  onstruction  wity wall : plasterbo	33.79 m 32.22 m	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.72 I 2.36 I	M M M M M M M M M M M M M M M M M M M
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description External Wall	<b>Type</b> Cavity Wa	29.58  Precise calc 154.66  Co	Ground Floor: 1st Storey:  culation  onstruction  wity wall : plasterbo	33.79 m 32.22 m	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.72 t 2.36 t 2.36 t Gross Area (m²) 167.14	Nett Area (m²) 141.82
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description External Wall	Type Cavity Wa Con	29.58  Precise calc  154.66  Co	culation  onstruction  wity wall : plasterbovity, any outside str	33.79 m 32.22 m	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.72 I 2.36 I	Nett Area (m²) 141.82
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description	Type  Cavity Wa  Con  Plas	29.58  Precise calcondenses and a care struction	culation  onstruction  wity wall : plasterbovity, any outside str	33.79 m 32.22 m	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.72 I 2.36 I Gross Area (m²) 167.14	Nett Area (m²) 141.82
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description External Wall  9.2 Internal Walls Description Ground Floor	Type  Cavity Wa  Con  Plas	29.58  Precise calcomplete (154.66)  Complete (154.66)  Can be carried (154.66)  Exercise (154.66)  Complete	culation  onstruction  wity wall : plasterbovity, any outside str	33.79 m 32.22 m	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.72 I 2.36 I 2.	Nett Area (m²) 141.82  Area (m²) 107.66 144.62
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs Description	Type  Cavity Wa  Con  Plas  Plas	29.58  Precise calcolors and the colors are calcolors are calcolors.	culation  culati	33.79 m 32.22 m	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24  U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.72 I 2.36 I 2.36 I 2.36 I Gross Area (m²) 167.14 Kappa (kJ/m²K) 9.00 9.00	Nett Area (m²) 141.82  Area (m²) 107.66 144.62  Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description External Wall  9.2 Internal Walls Description Ground Floor First Floor  10.0 External Roofs	Type  Cavity Wa  Con  Plas  Plas	29.58  Precise calcondenses and struction  terboard on ticterboard	culation  culati	33.79 m 32.22 m  pard on dabs, AAC blacked at ceiling level	] m² ] kJ/m²K	55.80 m <sup>2</sup> 57.43 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.72 I 2.36 I 2.	Nett Area (m²) 141.82  Area (m²) 107.66 144.62
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs Description  Cold Roof	Type  Cavity Wa  Con  Plas  Plas  Type  External P  External F	29.58  Precise calcondenses and struction  terboard on ticterboard	culation  culati	33.79 m 32.22 m  pard on dabs, AAC blacked at ceiling level	] m² ] kJ/m²K	U-Value (W/m²K) 0.24  U-Value (W/m²K) 0.11	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K) 9.00	2.72 I 2.36 I 2.36 I 2.36 I 3.00 Area (m²) 9.00 9.00 Gross Area (m²) 57.43	Nett Area (m²) 107.66 144.62  Nett Area (m²) 57.43





11.0 Heat Loss Flo Description	ors	Туре		Const	truction						/alue ′m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor Exposed Floor Al	bove Porch		nd Floor - Solid sed Floor - er		ended concrete er exposed floo			oists		0.	.16 .15	75.00 20.00	55.80
11.2 Internal Floor Description	rs		Construction									Kappa (kJ/m²K)	Area (m²)
First Floor			Plasterboard c	eiling, o	carpeted chipbo	oard floor						18.00	54.24
12.0 Opening Type	es												
Description		Source	Туре		Glazing		Glazing	g Argon Filled	G-val		Frame	Frame	U Value
Half Glazed Door	r Manu r	ufacture	e Half Glazed [	Door	Double Low-E	Soft 0.05	Gap	rilled	0.63		Туре	Factor 0.70	(W/m²K) 1.50
Patio Door		ufacture	Window		Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Window	r Manu r	ufacture	e Window		Double Low-E	Soft 0.05			0.63			0.70	1.30
13.0 Openings Name	Opening Typ	20	Location		Orientation	Curtain	Overhang	Wide	Width	Height	Coun	t Area	Curtain
Ivaille	Opening Typ	Je	Location		Offentation	Туре	Ratio	Overhang		(m)	Court	(m²)	Closed
Front Door	Half Glazed	Door	[1] External W		East							2.86	
Front Window LH Window	Window Window		[1] External W		East	None	0.00					6.95	
Rear Window	Window		[1] External W [1] External W		South West	None None	0.00					0.69 3.67	
Rear Patio Door			[1] External W		West	None	0.00					7.11	
RH Window	Window		[1] External W		North	None	0.00					2.12	
RH Door	Half Glazed	Door	[1] External W	all	North	110.10	0.00					1.92	
14.0 Conservatory	,		None										
15.0 Draught Proo	fing		100					%					
16.0 Draught Lobb	ру		No										
17.0 Thermal Brid	ging		Calcula	ite Brid	dges								
17.1 List of Bridge	S		_										
Source Type		Bridge		عد دائد	وامخمنا الممخمية ما	- \	Length	Psi	Imported	l			
Independently a Independently a		E3 Sill	ier iinteis (inciu	aing ot	her steel lintels	5)	15.66 10.23	0.050 0.034	No No				
Independently a		E4 Jam	n h				30.60	0.034	No No				
Independently a			ound floor (norr	nal)			33.79	0.060	No				
Table K1 - Defau			posed floor (no	,			3.71	0.320	No				
Table K1 - Defau			posed floor (in	,			3.71	0.320	No				
Independently a	ssessed	E6 Inte	ermediate floor	within	a dwelling		28.51	0.000	No				
Independently a	ssessed	E10 Ea	ves (insulation	at ceili	ng level)		9.63	0.123	No				
Table K1 - Defau	lt	E24 Ea	ves (insulation	at ceili	ng level - invert	ed)	1.98	0.240	No				
Independently a	ssessed	E12 Ga	able (insulation	at ceili	ng level)		22.59	0.063	No				
Table K1 - Defau		E14 Fla					0.56	0.080	No				
Independently a			orner (normal)				26.92	0.058	No				
Independently a	ssessed		orner (inverted al area)	– interr	nal area greater	r than	9.29	-0.069	No				
Y-value			0.038					W/m²K					
18.0 Pressure Test	ing		Yes										
Designed AP <sub>50</sub>			5.00					$m^3/(h.m^2)$	e) @ 50 Pa	a			
Property Teste	ed ?												
As Built AP <sub>50</sub>								m <sup>3</sup> /(h.m <sup>2</sup>	e) @ 50 Pa	а			
- 30								, ,					





### 19.0 Mechanical Ventilation

### **Summer Overheating**

Windows open in hot weather
Cross ventilation possible

Night Ventilation
Air change rate

Yes
No
8.00

Windows fully open

**Mechanical Ventilation** 

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

Туре

er

MV Reference Number

**Duct Type** 

Yes No

Patabase

Mechanical extract ventilation - decentralised

500230 Flexible

### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Coun
	Туре	
0.16	Through Wall	1
	Fan Kitchen	
0.16	Through Wall	2
	Fan Other Wet	t
	Room	
0.18	In Room Fan	2
	Other Wet	
	Room	

### 20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

## 21.0 Fixed Cooling System

## No

## 22.0 Lighting Internal

Total number of light fittings Total number of L.E.L. fittings

Percentage of L.E.L. fittings

14 14 100.00

%

## External

External lights fitted No

Standard

### 23.0 Electricity Tariff

Percentage of Heat

Database

Portentage of Heat

Database Ref. No.

Is493

Fuel Type

Mains gas

Main Heating

SAP Code

In Winter

Database

100

%

89.9

86.7



In Summer



PCDF Controls  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

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 Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	None	

### Recommendations

Lower cost measures

Further measures to achieve even higher standards

	Tunical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£30	B 85	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 93	





Property Reference	007780 - HT	- Haddingtor	n - Det			Iss	ued on Da	te 05/2	12/2019
Assessment	As Designed	- As			Prop Type	Ref 007	780-SAP-На	addington-D	_DS
Reference									
Property	Plot , Moort	horpe Way ,	Owlthorpe						
SAP Rating			83 B	DER	18.	.47	TER		19.50
Environmental			85 B	% DER <ter< td=""><td></td><td></td><td>5.27</td><td></td><td></td></ter<>			5.27		
CO <sub>2</sub> Emissions (t/yea	r)		1.47	DFEE	53.	88	TFEE		59.87
General Requiremen	ts Compliance		Pass	% DFEE <tfee< td=""><td></td><td></td><td>10.00</td><td>)</td><td></td></tfee<>			10.00	)	
	Mr. George Lead			01904 656271,			Assessor I	D P71	.9-0001
	george.leadley@	thefesgroup	.com						
Client	Avant Homes Ce	entral							
SUMMARY FOR INPU	T DATA FOR: No	ew Build (As	Designed)						
Orientation		East							
Property Tenure		Unknown							
Transaction Type		New dwelling							
Terrain Type		Suburban							
1.0 Property Type		House, Detac	hed						
2.0 Number of Storeys		2							
3.0 Date Built		2018			ĺ				
4.0 Sheltered Sides		2			ĺ				
5.0 Sunlight/Shade		Average or u	nknown						
6.0 Measurements									
				Heat Loss Perimet	er Inte	rnal Floor	Area A	verage Stor	ey Height
		Gr	ound Floor:	27.18 m		43.64 m <sup>2</sup>		2.38	
			1st Storey:	27.18 m		43.64 m <sup>2</sup>		2.70	m 
7.0 Living Area		33.68			m²				
8.0 Thermal Mass Paran	neter	Precise calcu	lation						
Thermal Mass		163.15			kJ/m²K				
9.0 External Walls									
Description	Туре	Cons	truction			U-Value	Kappa	Gross Area	Nett Area
External Wall	Cavity Wal	l Cavit	v wall · nlasterho	oard on dabs, AAC blo	ack filled	(W/m²K) 0.24	(kJ/m²K) 60.00	(m²) 138.23	(m²) 119.68
External train	carrey train		y, any outside st		,ca	0.2.	00.00	200.20	113.00
9.1 Party Walls									
Description	Туре	Cons	truction				U-Value	Карра	Area
							(W/m²K)	(kJ/m²K)	(m²)
								45.00	
9.2 Internal Walls									
Description	Cons	truction						Карра	Area
Cround Flags	pl	orboard + 1	or frame					(kJ/m²K)	(m²)
Ground Floor First Floor		erboard on timber erboard on timb						9.00 9.00	65.59 136.84
	1 1030								
10.0 External Roofs	<b>T</b>					11.37-1	V	Cunna A	North A
Description	Туре	Cons	truction			U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
Cold Roof	External Pl	ane Roof Plast	erboard, insulate	ed at ceiling level		0.11	9.00	43.64	43.64





10.2 Internal Ceiling Description	gs		Const	ruction							Карра	Area
Ground Floor			Plaste	rboard ceiling,	carpeted chipbo	oard floor					(kJ/m²K) 9.00	(m²) 43.64
11.0 Heat Loss Floor	rs											
Description		Туре		Cons	truction					U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor		Grou	nd Floo	or - Solid Susp	ended concrete	floor, carp	eted			0.15	75.00	43.64
11.2 Internal Floors Description			Const	ruction							Kappa (kJ/m²K)	Area (m²)
First Floor			Plaste	rboard ceiling,	carpeted chipbo	oard floor					18.00	43.64
12.0 Opening Types	;											
Description	Data	Source	Тур	е	Glazing		Glazing Gap	g Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Half Glazed Door	Man r	ufacture	e Half	Glazed Door	Double Low-E	Soft 0.05			0.63		0.70	1.50
Patio Door	Man r	ufacture	e Win	dow	Double Low-E	Soft 0.05			0.63		0.70	1.50
Window	Man r	ufacture	e Win	dow	Double Low-E	Soft 0.05			0.63		0.70	1.30
13.0 Openings Name	Opening Ty	/pe	Locati	ion	Orientation	Curtain Type	Overhang Ratio	Wide Overhang		leight Cour (m)	nt Area (m²)	Curtain Closed
Front Door F	Half Glazed	Door	[1] Ex	ternal Wall	East	Туре	Katio	Overnang	(111)	(111)	2.86	Closed
	Window			ternal Wall	East	None	0.00				3.99	
	Window			ternal Wall	South	None	0.00				0.92	
Rear Window V Rear Patio Door V	Window Window			ternal Wall ternal Wall	West West	None None	0.00				3.67 7.11	
14.0 Conservatory				None								
15.0 Draught Proofi	ng			100				%				
16.0 Draught Lobby	,			No								
17.0 Thermal Bridgi	ng			Calculate Bri	dges							
17.1 List of Bridges		Duidee	T				Lanath	De:	lanca santa al			
Source Type Independently ass	hazza	Bridge F2 Oth		els (including o	ther steel lintels		Length 11.34	<b>Psi</b> 0.050	Imported No			
Independently ass		E3 Sill	ici iiiic	cis (ilicidaliig o	ther steer mitters	,	6.82	0.034	No			
Independently ass		E4 Jan	nb				25.80	0.040	No			
Independently ass	essed	E5 Gro	ound flo	oor (normal)			27.18	0.060	No			
Independently ass				ate floor withir	0		27.18	0.000	No			
Independently ass				sulation at ceil			10.40	0.123	No			
Independently ass Independently ass				isulation at ceil normal)	ing level)		16.78 20.34	0.063 0.058	No No			
Y-value				0.031				W/m²K				
18.0 Pressure Testin	ng			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 Ve	ntilation											
Summer Overhe	eating											
Windows op	en in hot	weathe	er	Window	s fully open							



Cross ventilation possible

Regs Region: England Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.12r02

Yes



Night Ven	itilation	No				
Air change	e rate	8.00				
Mechanical V	entilation					
Mechanica	l Ventilation System Presen	t Yes				
Approved	Installation	No				
Mechanic	al Ventilation data Type	Database				
Туре		Mechanical extr	act ventilatio	n -		
		decentralised				
MV Refer	ence Number	500230				
Duct Type	2	Flexible				
19.1 Mechanical	extract ventilation - Dec	entralised				
SFP	Fan/Room Count					
0.46	Туре					
0.16	Through Wall 1 Fan Kitchen					
0.16	Through Wall 2					
	Fan Other Wet					
0.18	Room In Room Fan 2					
0.18	Other Wet					
	Room					
20.0 Fans, Open I	Fireplaces, Flues					
zoro rano, open i	neplaces, riaes	MHS	SHS	Other	Total	
Number of Ch		0		0	0	
Number of op		0		0	0	
Number of in	termittent fans				0	
	ieless gas fires				0	
21.0 Fixed Coolin	g System	No				
	8 9 y 3 t 2 1 1	110				
22.0 Lighting						
Internal					¬	
	nber of light fittings	12				
	nber of L.E.L. fittings	12				
	ge of L.E.L. fittings	100.00			%	
External					7	
External li	ights fitted	No				
23.0 Electricity Ta	ariff	Standard				
24.0 Main Heatin	g 1	Database			]	
Percentage of	f Heat	100			%	
Database Ref.	. No.	18204				
Fuel Type		Mains gas				
Main Heating		BGW				
SAP Code		104			_	
In Winter		89.9				
In Summe	er	86.7			Ī	
Controls		CBI Time and tempe	rature zone	control	Ī	
PCDF Controls	S	0			Ī	
Delayed Start		Yes			Ī	
Sap Code		2110			Ī	
		1			1	





25.0 Main Heating 2	None	
Combi keep hot type	None	
Combi boiler type	Standard Combi	
Flow Temperature	Normal (> 45°C)	
Heat Emitter	Radiators	
Is MHS Pumped	Pump in heated space	
Fan Assisted Flue	Yes	
Flue Type	Balanced	

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 Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
SAP Code	901
29.0 Hot Water Cylinder	None

### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£30	B 84	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 94	





Property Reference	007780 - HT - Haddi	ngton - Sem			Issued on Da	te 05/2	12/2019
Assessment	As Designed - As			Prop Type Ref	007780-SAP-Ha	addington-S_	DS
Reference							
Property	Plot , Moorthorpe V	Vay , Owlthorpe					
SAP Rating		84 B	DER	17.58	TER		18.31
Environmental		86 B	% DER <ter< td=""><td></td><td>3.98</td><td></td><td></td></ter<>		3.98		
CO <sub>2</sub> Emissions (t/year)		1.38	DFEE	49.81	TFEE		53.77
General Requirements	Compliance	Pass	% DFEE <tfee< td=""><td></td><td>7.36</td><td></td><td></td></tfee<>		7.36		
	r. George Leadley, Ge eorge.leadley@thefes		01904 656271,		Assessor I	D P71	9-0001
Client	ant Homes Central						
SUMMARY FOR INPUT	DATA FOR: New Build	d (As Designed)					
Orientation	East			]			
Property Tenure	Unknov	vn					
Transaction Type	New dv	velling					
Terrain Type	Suburb	an		Ì			
1.0 Property Type	House,	Semi-Detached		j			
2.0 Number of Storeys	2			]			
3.0 Date Built	2018			]			
4.0 Sheltered Sides	2			]			
5.0 Sunlight/Shade	Average	e or unknown		]			
6.0 Measurements							
			Heat Loss Perimet			verage Stor	-
		Ground Floor: 1st Storey:	18.79 m 18.79 m		64 m <sup>2</sup>	2.38 2.70	
		15t 5toley.	10.75111		04 111	2.70	
7.0 Living Area	33.68			m²			
8.0 Thermal Mass Parame	Precise	calculation					
Thermal Mass	187.59			kJ/m²K			
9.0 External Walls  Description	Туре	Construction			Value Kappa /m²K) (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
External Wall	Cavity Wall	Cavity wall : plasterb cavity, any outside s	ooard on dabs, AAC blo tructure	•	0.24 60.00	95.56	77.01
9.1 Party Walls							
Description	Туре	Construction			U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard of blocks, cavity or cavi	on dabs both sides, lig ty fill	htweight aggregat	,	110.00	42.67
9.2 Internal Walls Description	Construction					Kappa	Area
Ground Floor	Diactorhood	on timber frame				(kJ/m²K) 9.00	(m²) 65.59
First Floor		on timber frame				9.00	136.84
10.0 External Roofs Description	Туре	Construction			Value Kappa	Gross Area	Nett Area
Cold Roof	External Plane Roof	Plasterboard, insula	ted at ceiling level	•	/m²K) (kJ/m²K) 0.11 9.00	(m²) 43.64	(m²) 43.64





10.2 Internal Ceilin Description	ngs		Const	ruction								Kappa (kJ/m²K)	Area (m²)
Ground Floor			Plaste	rboard ceilin	g, carpeted chipb	oard floor						9.00	43.64
11.0 Heat Loss Floo Description	ors	Туре		Co	nstruction						/alue /m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor		Grour	nd Floo	or - Solid Su	spended concrete	floor, carp	oeted				.15	75.00	43.64
11.2 Internal Floor Description	rs		Const	ruction								Kappa (kJ/m²K)	Area (m²)
First Floor			Plaste	rboard ceilin	g, carpeted chipb	oard floor						18.00	43.64
12.0 Opening Type Description		Source	Туре	9	Glazing		Glazing Gap	Argon Filled	G-val		rame Type	Frame Factor	U Value (W/m²K)
Half Glazed Door	Man	ufacture	Half	Glazed Door	Double Low-E	Soft 0.05	Сар	rilleu	0.63		Туре	0.70	1.50
Patio Door		ufacture	Win	dow	Double Low-E	Soft 0.05			0.63			0.70	1.50
Window	r Man r	ufacture	Win	dow	Double Low-E	Soft 0.05			0.63	3		0.70	1.30
13.0 Openings Name	Opening Ty	pe	Locati	on	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height (m)	Count	t Area	Curtain Closed
Front Door	Half Glazed	Door	[1] Ext	ernal Wall	East	Type	Natio	Overnang	, (''')	(111)		2.86	Closeu
Front Window	Window		[1] Ext	ernal Wall	East	None	0.00					3.99	
LH Window	Window		[1] Ext	ernal Wall	South	None	0.00					0.92	
Rear Window	Window			ernal Wall	West	None	0.00					3.67	
Rear Patio Door	Window		[1] Ext	ernal Wall	West	None	0.00					7.11	
14.0 Conservatory				None									
15.0 Draught Proo	fing			100				%					
16.0 Draught Lobb	у			No									
17.0 Thermal Bridg	ging			Calculate E	Bridges								
17.1 List of Bridges	-												
Source Type		Bridge	Туре				Length	Psi	Imported	l			
Independently as	ssessed	E2 Oth	er linte	els (including	other steel lintels	5)	11.34	0.050	No				
Independently as		E3 Sill					6.82	0.034	No				
Independently as		E4 Jam					25.80	0.040	No				
Independently as				oor (normal)	L		18.79	0.060	No				
Independently as Independently as				ate floor with sulation at c	hin a dwelling		18.79 10.40	0.000	No				
Independently as				sulation at c			8.39	0.123	No No				
Independently as				normal)	ciiiig icveij		10.17	0.058	No				
Table K1 - Defaul			,	II between d	wellings		10.17	0.120	No				
Table K1 - Defau	lt		•	- Ground flo			8.39	0.160	No				
Table K1 - Defau	lt	P2 Part	ty wall	- Intermedia	ate floor within a		8.39	0.000	No				
Table K1 - Defau	lt	dwellir P4 Part	_	- Roof (insul	ation at ceiling lev	vel)	8.39	0.240	No				
Y-value				0.054				W/m²K					
18.0 Pressure Test	ing			Yes									
Designed AP <sub>50</sub>	0			5.00				m³/(h.m²	) @ 50 P:	a			
Property Teste	4.5		i	12.00				/ (!!!!!!	, @ 5016	_			
. ,	u:							m3//h ~~?	) @ E0 D				
As Built AP <sub>50</sub>								m³/(h.m²	) @ 50 Pa	7			





### 19.0 Mechanical Ventilation

### **Summer Overheating**

Windows fully open Windows open in hot weather Cross ventilation possible Yes No **Night Ventilation** 

## Air change rate **Mechanical Ventilation**

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

MV Reference Number

**Duct Type** 

8.00

Yes No

Mechanical extract ventilation -

500230 Flexible

### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Coun
	Туре	
0.16	Through Wall	1
	Fan Kitchen	
0.16	Through Wall	2
	Fan Other We	t
	Room	
0.18	In Room Fan	2
	Other Wet	
	Room	

### 20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

No

decentralised

## 21.0 Fixed Cooling System

### 22.0 Lighting

## Internal

Total number of light fittings Total number of L.E.L. fittings Percentage of L.E.L. fittings

12 12 100.00

%

#### **External**

External lights fitted

No

## 23.0 Electricity Tariff

Database 24.0 Main Heating 1 Percentage of Heat 100 % Database Ref. No. 18204 Fuel Type Mains gas Main Heating **BGW** 104

Standard

SAP Code In Winter In Summer

89.9 86.7





PCDF Controls  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

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 Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	None	

### Recommendations

Lower cost measures

Further measures to achieve even higher standards

	Tunical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£30	B 85	
	Tunical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 95	





<b>Property Reference</b>	007780 - HT	- Helmsdal	le - End			Iss	ued on Da	te 05/1	12/2019
Assessment	As Designed	l - As			Prop Type	Ref 007	780-SAP-He	lmsdale-E_[	OS
Reference									
Property	Plot , Moort	horpe Way	, Owlthorpe						
SAP Rating			83 B	DER	18.	89	TER		19.47
Environmental			86 B	% DER <ter< td=""><td></td><td></td><td>2.99</td><td></td><td></td></ter<>			2.99		
CO <sub>2</sub> Emissions (t/yea	ır)		1.17	DFEE	50.	14	TFEE		53.30
General Requiremen	ts Compliance		Pass	% DFEE <tfee< td=""><td></td><td></td><td>5.93</td><td></td><td></td></tfee<>			5.93		
	Mr. George Lead			01904 656271,			Assessor I	D P71	9-0001
	george.leadley@	nthefesgro	up.com						
Client	Avant Homes Co	entral							
SUMMARY FOR INPU	T DATA FOR: N	ew Build (A	As Designed)						
Orientation		East			]				
Property Tenure		Unknown							
Transaction Type		New dwelli	ing						
Terrain Type		Suburban							
1.0 Property Type		House, End	d-Terrace		]				
2.0 Number of Storeys		2			]				
3.0 Date Built		2018							
4.0 Sheltered Sides		2			Ī				
5.0 Sunlight/Shade		Average or	unknown		j				
6.0 Measurements									
				Heat Loss Perimet	ter Inte	rnal Floor	r Area A	verage Stor	ey Height
		(	Ground Floor:	16.66 m	ter Inte	34.55 m <sup>2</sup>	2	2.38 ו	m
		(			ter Inte		2	•	m
7.0 Living Area		28.25	Ground Floor:	16.66 m	er Inter	34.55 m <sup>2</sup>	2	2.38 ו	m
7.0 Living Area 8.0 Thermal Mass Parar	neter		Ground Floor: 1st Storey:	16.66 m	1	34.55 m <sup>2</sup>	2	2.38 ו	m
	neter	28.25	Ground Floor: 1st Storey:	16.66 m	1	34.55 m <sup>2</sup>	2	2.38 ו	m
8.0 Thermal Mass Parar	meter	28.25 Precise cald	Ground Floor: 1st Storey:	16.66 m	] m²	34.55 m <sup>2</sup>	2	2.38 ו	m
8.0 Thermal Mass Parar Thermal Mass	neter Type	28.25  Precise cald 201.73	Ground Floor: 1st Storey:	16.66 m	] m²	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value	2 2 Kappa	2.38 I 2.70 I	m m
8.0 Thermal Mass Parar Thermal Mass 9.0 External Walls Description	Туре	28.25  Precise calc 201.73	Ist Storey:  culation	16.66 m 16.66 m	] m² ] kJ/m²K	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa	2.38 r 2.70 r	M M Nett Area (m²)
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls		28.25 Precise cald 201.73  Co	Ist Storey:  culation	16.66 m 16.66 m	] m² ] kJ/m²K	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value	2 2 Kappa	2.38 I 2.70 I	m m
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description  External Wall	Туре	28.25 Precise cald 201.73  Co	Ist Storey:  culation  onstruction  vity wall : plasterbo	16.66 m 16.66 m	] m² ] kJ/m²K	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa	2.38 r 2.70 r	M M Nett Area (m²)
8.0 Thermal Mass Parar Thermal Mass 9.0 External Walls Description	Туре	28.25  Precise cald 201.73  Co Ca	Ist Storey:  culation  onstruction  vity wall : plasterbo	16.66 m 16.66 m	] m² ] kJ/m²K	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa	2.38 r 2.70 r	M M Nett Area (m²)
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls	<b>Type</b> Cavity Wal	28.25  Precise cald 201.73  Co Ca	culation  onstruction  vity wall: plasterbovity, any outside str	16.66 m 16.66 m	] m² ] kJ/m²K	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K) 60.00	2.38 i 2.70 i Gross Area (m²) 84.69	Nett Area (m²) 72.30
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls	<b>Type</b> Cavity Wal	28.25  Precise cald 201.73  Co  Co  can  can  cy with Sin	culation  instruction  vity wall : plasterbovity, any outside struction	16.66 m 16.66 m  ard on dabs, AAC bloucture	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.38 r 2.70 r Gross Area (m²) 84.69	Nett Area (m²) 72.30
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls Description Party Wall	Type Cavity Wal  Type  Filled Cavit	28.25  Precise cald 201.73  Co  Co  can  can  cy with Sin	culation  instruction  vity wall : plasterbovity, any outside struction  instruction	16.66 m 16.66 m  ard on dabs, AAC bloucture	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 r 2.70 r Gross Area (m²) 84.69 Kappa (kJ/m²K)	Nett Area (m²) 72.30  Area (m²)
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description	Type  Cavity Wal  Type  Filled Cavit Edge Sealin	28.25  Precise cald 201.73  Co  Co  can  can  cy with Sin	culation  instruction  vity wall : plasterbovity, any outside struction  instruction	16.66 m 16.66 m  ard on dabs, AAC bloucture	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 i 2.70 i Gross Area (m²) 84.69 Kappa (kJ/m²K) 110.00	Nett Area (m²) 72.30  Area (m²) 39.81  Area
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls	Type  Cavity Wal  Type  Filled Cavit Edge Sealin  Cons	28.25  Precise calcomplete cal	culation  instruction  vity wall: plasterbovity, any outside struction  instruction  instruction	16.66 m 16.66 m  ard on dabs, AAC bloucture	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 r 2.70 r Gross Area (m²) 84.69 Kappa (kJ/m²K) 110.00	Nett Area (m²) 72.30  Area (m²) 39.81
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description	Type Cavity Wal  Type Filled Cavit Edge Sealin  Cons	28.25  Precise cald 201.73  Co  Co  ty with Sin ng blo  struction	culation  culati	16.66 m 16.66 m  ard on dabs, AAC bloucture	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i Gross Area (m²) 84.69 Kappa (kJ/m²K) 110.00	Nett Area (m²) 72.30  Area (m²) 39.81  Area (m²)
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type Cavity Wal  Type Filled Cavit Edge Sealin  Cons	28.25  Precise cald 201.73  Co  Co  ty with Sin ng blo  struction	culation  culati	16.66 m 16.66 m  ard on dabs, AAC bloucture	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i Gross Area (m²) 84.69 Kappa (kJ/m²K) 110.00	Nett Area (m²) 72.30  Area (m²) 39.81  Area (m²) 41.79
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor	Type Cavity Wal  Type Filled Cavit Edge Sealin  Cons	28.25  Precise cald 201.73  Co  Co  ty with Sin  ng blo  struction  terboard on tin  terboard on tin	culation  culati	16.66 m 16.66 m  ard on dabs, AAC bloucture	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24  U-Value	Kappa (kJ/m²K) 60.00  U-Value (W/m²K) 0.00	2.38 i 2.70 i 2.70 i Gross Area (m²) 84.69 Kappa (kJ/m²K) 110.00 Kappa (kJ/m²K) 9.00 9.00	Nett Area (m²) 72.30  Area (m²) 39.81  Area (m²) 41.79 77.81
8.0 Thermal Mass Parar Thermal Mass  9.0 External Walls Description  External Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs	Type  Cavity Wal  Type  Filled Cavit Edge Sealin  Cons	28.25  Precise cald 201.73  Co  Co  ty with Sin  ng blo  struction  terboard on tin  terboard on tin	culation  culati	16.66 m 16.66 m  bard on dabs, AAC blocucture  n dabs both sides, lig	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K) 0.00	2.38 i 2.70 i 2.70 i Gross Area (m²) 84.69 Kappa (kJ/m²K) 110.00	Nett Area (m²) 72.30  Area (m²) 39.81  Area (m²) 41.79 77.81





10.2 Internal Ceiling Description	s	Construction							Kappa (kJ/m²K)	Area (m²)
Ground Floor		Plasterboard ceiling	, carpeted chipbo	oard floor					9.00	34.55
11.0 Heat Loss Floor Description	туре	e Con	struction					U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Gro	und Floor - Solid Susp	ended concrete	floor, carp	eted			0.15	75.00	34.55
11.2 Internal Floors Description		Construction							Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling	, carpeted chipbo	oard floor					18.00	34.55
12.0 Opening Types										
Description	Data Sourc	е Туре	Glazing		Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Half Glazed Door	Manufactu r	re Half Glazed Door	Double Low-E	Soft 0.05			0.63		0.70	1.50
Patio Door	Manufactu r	re Window	Double Low-E	Soft 0.05			0.63		0.70	1.50
Window	Manufactu r	re Window	Double Low-E	Soft 0.05			0.63		0.70	1.30
13.0 Openings Name O	pening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang		eight Coun	t Area	Curtain Closed
Front Door H	lalf Glazed Door	[1] External Wall	East	71-				. ,	2.07	
Front Window V	Vindow	[1] External Wall	East	None	0.00				3.16	
LH Window V	Vindow	[1] External Wall	South	None	0.00				0.92	
	Vindow	[1] External Wall	West	None	0.00				2.44	
Rear Patio Door V	Vindow	[1] External Wall	West	None	0.00				3.80	
14.0 Conservatory		None								
15.0 Draught Proofin	ng	100				%				
16.0 Draught Lobby		No								
17.0 Thermal Bridgir	ng	Calculate Br	idges							
17.1 List of Bridges										
Source Type	Bridg	де Туре			Length	Psi	Imported			
Independently asse		ther lintels (including o	other steel lintels	5)	7.79	0.050	No			
Independently asse					4.99	0.034	No			
Independently asse					18.60	0.040	No			
Independently asse		round floor (normal)			16.66	0.060	No			
Independently asset Independently asset		termediate floor withi Eaves (insulation at cei			16.66 8.83	0.000	No			
Independently asse		Gable (insulation at ce			7.83	0.123	No No			
Independently asse		Corner (normal)	iiiig ieveij		10.17	0.058	No			
Table K1 - Default		Party wall between dw	rellings		10.17	0.120	No			
Table K1 - Default		arty wall - Ground floo	-		7.83	0.160	No			
Table K1 - Default		arty wall - Intermediat			7.83	0.000	No			
Table K1 - Default	dwel P4 Pa	ling arty wall - Roof (insula	tion at ceiling lev	rel)	7.83	0.240	No			
Y-value		0.057				W/m²K				
18.0 Pressure Testin	g	Yes								
Designed AP <sub>50</sub>	-	5.00				m³/(h.m²	) @ 50 Pa			
9	2	5.00				/ (!!!!!!	, e- 501 a			
Property Tested	:					m <sup>3</sup> //h?	) @ E0 D2			
As Built AP <sub>50</sub>						m³/(h.m²	) @ 50 Pa			





### 19.0 Mechanical Ventilation

#### **Summer Overheating**

Windows open in hot weather Cross ventilation possible Night Ventilation

Air change rate

**Mechanical Ventilation** 

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

Туре

MV Reference Number

**Duct Type** 

Windows fully open

Yes

No

8.00

Yes No

Database

Mechanical extract ventilation -

decentralised

500230

Flexible

### 19.1 Mechanical extract ventilation - Decentralised

Count

SFP Fan/Room

Type

0.16 Through Wall 1

Fan Kitchen

0.18 In Room Fan 2

Other Wet

### 20.0 Fans, Open Fireplaces, Flues

	IVIHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

### 21.0 Fixed Cooling System

### 22.0 Lighting

## Internal

Total number of light fittings
Total number of L.E.L. fittings

Percentage of L.E.L. fittings

11

No

100.00

」 기 %

#### **External**

External lights fitted

No

## 23.0 Electricity Tariff

24.0 Main Heating 1

Percentage of Heat

Database Ref. No.

Fuel Type Main Heating SAP Code

In Winter
In Summer
Controls

PCDF Controls

## Standard Database

100 18204

Mains gas

BGW 104

89.9 86.7

CBI Time and temperature zone control





25.0 Main Heating 2	None	
Combi keep hot type	None	
Combi boiler type	Standard Combi	
Flow Temperature	Normal (> 45°C)	
Heat Emitter	Radiators	
Is MHS Pumped	Pump in heated space	
Fan Assisted Flue	Yes	
Flue Type	Balanced	
Sap Code	2110	
Delayed Start Stat	Yes	

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 Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	None	]

### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£28	B 84	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 96	





<b>Property Reference</b>	007780 - H	T - Helmsdale	e - Mid			Issu	ued on Da	te 05/1	12/2019
Assessment	As Designed	d - As/Opp			Prop Type	Ref 0077	780-SAP-He	elmsdale-M_	DS
Reference									
Property	Plot , Moor	thorpe Way,	Owlthorpe						
SAP Rating			84 B	DER	17	.68	TER		18.00
Environmental			87 B	% DER <ter< td=""><td></td><td></td><td>1.76</td><td></td><td></td></ter<>			1.76		
CO <sub>2</sub> Emissions (t/yes	ar)		1.08	DFEE	44.	28	TFEE		45.35
General Requiremen	nts Compliance		Pass	% DFEE <tfe< td=""><td><b></b></td><td></td><td>2.35</td><td></td><td></td></tfe<>	<b></b>		2.35		
Assessor Details	Mr. George Lea george.leadley			01904 656271,			Assessor I	D P71	9-0001
Client	Avant Homes C		p.com						
SUMMARY FOR INPL	JT DATA FOR: N	lew Build (As	Designed)						
Orientation		East			]				
Property Tenure		Unknown			]				
Transaction Type		New dwellin	ıg		1				
Terrain Type		Suburban			1				
1.0 Property Type		House, Mid-	Terrace		1				
2.0 Number of Storeys		2							
3.0 Date Built		2018			1				
4.0 Sheltered Sides		3			1				
5.0 Sunlight/Shade		Average or u	ınknown		]				
6.0 Measurements									
			1	Heat Loss Perime	ter Inte	rnal Floor	Area A	verage Stor	ey Height
		Gı	round Floor:	8.83 m	ter Inte	34.55 m <sup>2</sup>		2.38 r	m
		Gr			ter Inte			•	m
7.0 Living Area		Gr 28.25	round Floor:	8.83 m	ter Inte	34.55 m <sup>2</sup>		2.38 r	m
7.0 Living Area 8.0 Thermal Mass Para	meter		round Floor: 1st Storey:	8.83 m		34.55 m <sup>2</sup>		2.38 r	m
	meter	28.25	round Floor: 1st Storey:	8.83 m		34.55 m <sup>2</sup>		2.38 r	m
8.0 Thermal Mass Para	meter	28.25 Precise calcu	round Floor: 1st Storey:	8.83 m	] m²	34.55 m <sup>2</sup>		2.38 r	m
8.0 Thermal Mass Para Thermal Mass	meter Type	28.25  Precise calcu 231.33	round Floor: 1st Storey:	8.83 m	] m²	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value	Карра	2.38 r 2.70 r	m m
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls		28.25 Precise calcu 231.33  Cons	1st Storey:  ulation	8.83 m 8.83 m	] m² ] kJ/m²K	34.55 m <sup>2</sup>		2.38 r 2.70 r	m m
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description	Туре	28.25 Precise calcu 231.33  Cons	Ist Storey:  ulation  struction  ty wall : plasterbo	8.83 m 8.83 m	] m² ] kJ/m²K	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 r 2.70 r Gross Area (m²)	n Nett Area (m²)
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description  External Wall	Туре	28.25  Precise calcu 231.33  Cons	Ist Storey:  ulation  struction  ty wall : plasterbo	8.83 m 8.83 m	] m² ] kJ/m²K	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K) 60.00	2.38 r 2.70 r 2.70 r Gross Area (m²) 44.88	Nett Area (m²) 33.41
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls	<b>Type</b> Cavity Wa	28.25  Precise calculation    231.33  Constitution    Constitu	Ist Storey:  ulation  struction  ity wall: plasterboty, any outside struction	8.83 m 8.83 m	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	<b>Карра</b> (к <b>J/m²К)</b> 60.00	2.38 r 2.70 r Gross Area (m²) 44.88	Nett Area (m²) 33.41
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description	Type  Cavity Wa  Type  Filled Cav	28.25  Precise calculation    231.33  Constitution    Constitu	Ist Storey:  Julation  struction  ity wall: plasterboty, any outside struction  struction	8.83 m 8.83 m	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 r 2.70 r 2.70 r Gross Area (m²) 44.88	Nett Area (m²) 33.41  Area (m²)
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls Description Party Wall	Type  Cavity Wa  Type  Filled Cav Edge Seal	28.25  Precise calculation    231.33  Constitution    Constitu	Ist Storey:  Julation  struction  ity wall: plasterboty, any outside struction  struction	8.83 m 8.83 m	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 r 2.70 r 2.70 r Gross Area (m²) 44.88	Nett Area (m²) 33.41  Area (m²)
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls Description Party Wall	Type  Cavity Wa  Type  Filled Cav Edge Seal	28.25  Precise calcu 231.33  Constitution Co	struction  ity wall: plasterboty, any outside struction  struction  ity wall outside struction  ity wall outside struction	8.83 m 8.83 m	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 r 2.70 r 2.70 r Gross Area (m²) 44.88 Kappa (kJ/m²K) 110.00	Nett Area (m²) 33.41  Area (m²) 79.62
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description	Type  Cavity Wa  Type  Filled Cav Edge Seal  Con	28.25  Precise calcu 231.33  Constitution  Constitution	struction  ity wall: plasterboty, any outside struction  gle plasterboard or iks, cavity or cavity  ber frame	8.83 m 8.83 m	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 r 2.70 r 2.70 r Gross Area (m²) 44.88 Kappa (kJ/m²K) 110.00	Nett Area (m²) 33.41  Area (m²) 79.62  Area (m²)
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs	Type  Cavity Wa  Type  Filled Cav Edge Seal  Con Plas	28.25  Precise calcu 231.33  Constitution  ity with Sing blocustruction  sterboard on timesterboard on times	struction  ity wall : plasterbo ty, any outside str struction  le plasterboard or iks, cavity or cavity ber frame ber frame	8.83 m 8.83 m	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K) 0.00	2.38 r 2.70 r 2.70 r 2.70 r 2.70 r 2.38 r 2.70 r 44.88 Kappa (kJ/m²K) 110.00	Nett Area (m²) 33.41  Area (m²) 79.62  Area (m²) 41.79 77.81
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type  Cavity Wa  Type  Filled Cav Edge Seal  Con	28.25  Precise calcu 231.33  Constitution  ity with Sing blocustruction  sterboard on timesterboard on times	struction  ity wall: plasterboty, any outside struction  gle plasterboard or iks, cavity or cavity  ber frame	8.83 m 8.83 m	] m² ] kJ/m²K ock, filled	34.55 m <sup>2</sup> 34.55 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 r 2.70 r 2.70 r Gross Area (m²) 44.88 Kappa (kJ/m²K) 110.00	Nett Area (m²) 33.41  Area (m²) 79.62  Area (m²) 41.79





10.2 Internal Ceilings Description		Construction								Kappa (kJ/m²K)	Area (m²)
Ground Floor		Plasterboard ceiling,	carpeted chipbo	oard floor						9.00	34.55
11.0 Heat Loss Floors											
Description	Туре	Cons	truction						/alue /m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Grou	nd Floor - Solid Susp	ended concrete	floor, carp	eted			, .	).14	75.00	34.55
11.2 Internal Floors Description		Construction								Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling,	carpeted chipbo	oard floor						18.00	34.55
12.0 Opening Types Description	Data Source	Туре	Glazing		Glazing Gap	Argon Filled	G-valı	ue	Frame	Frame Factor	U Value (W/m²K)
Half Glazed Door		e Half Glazed Door	Double Low-E	Soft 0.05	Сар	rilleu	0.63	3	Type	0.70	1.50
Patio Door	r Manufactur	e Window	Double Low-E	Soft 0.05			0.63			0.70	1.50
Window	r Manufactur r	e Window	Double Low-E	Soft 0.05			0.63			0.70	1.30
13.0 Openings	1										
	ening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Heigh	t Coun	t Area (m²)	Curtain Closed
	Ilf Glazed Door indow	[1] External Wall [1] External Wall	East	None	0.00					2.07	
	indow	[1] External Wall	East West	None None	0.00					3.16 2.44	
Rear Patio Door W	indow	[1] External Wall	West	None	0.00					3.80	
14.0 Conservatory		None									
15.0 Draught Proofing	g	100				%					
16.0 Draught Lobby		No									
17.0 Thermal Bridging	g	Calculate Br	idges								
17.1 List of Bridges		_									
Source Type	_	e Type	*h +		Length	Psi	Imported				
Independently asses		ner lintels (including o	ither steel lintels	)	7.10 4.30	0.050 0.034	No No				
Independently asses					15.90	0.034	No				
Independently asses		ound floor (normal)			8.83	0.060	No				
Independently asses		ermediate floor within	n a dwelling		8.83	0.000	No				
Independently asses	ssed E10 Ea	aves (insulation at ceil	ing level)		8.83	0.123	No				
Table K1 - Default	E18 Pa	arty wall between dw	ellings		20.34	0.120	No				
Table K1 - Default		rty wall - Ground floor			15.66	0.160	No				
Table K1 - Default	P2 Paı dwelli	rty wall - Intermediate ng	e floor within a		15.66	0.000	No				
Table K1 - Default		rty wall - Roof (insulat	ion at ceiling lev	el)	15.66	0.240	No				
Y-value		0.101				W/m²K					
18.0 Pressure Testing		Yes									
Designed AP <sub>50</sub>		5.00				$m^3/(h.m^2$	) @ 50 Pa	a			
Property Tested ?											
As Built AP <sub>50</sub>						m³/(h.m²	) @ 50 Pa	3			
19 0 Machanical Van	M-41					- 1	. = -				

19.0 Mechanical Ventilation

**Summer Overheating** 





Windows open in hot weather	Windows ful	lly open			
Cross ventilation possible	Yes				
Night Ventilation	No				
Air change rate	8.00			<del></del>	
Mechanical Ventilation				<del></del>	
Mechanical Ventilation System Preser	nt Yes				
Approved Installation	No			=	
Mechanical Ventilation data Type					
Туре		extract ventila	ation -		
.,,,,	decentralise				
MV Reference Number	500230				
Duct Type	Flexible				
19.1 Mechanical extract ventilation - Dec				<del></del>	
SFP   Fan/Room   Count					
20.0 Fans, Open Fireplaces, Flues					
	MHS	SHS	Other	Total	
Number of Chimneys Number of open flues	0		0	0	
Number of open flues  Number of intermittent fans	0		0	0 0	
Number of passive vents				0	
Number of flueless gas fires				0	
21.0 Fixed Cooling System	No				
22.0 Lighting					
Internal					
Total number of light fittings	11				
Total number of L.E.L. fittings	11				
Percentage of L.E.L. fittings	100.00			%	
External	200.00			, ,	
External lights fitted	No				
-					
23.0 Electricity Tariff	Standard				
24.0 Main Heating 1	Database				
Percentage of Heat	100			%	
Database Ref. No.	18204				
Fuel Type	Mains gas				
Main Heating	BGW				
SAP Code	104				
In Winter	89.9				
In Summer	86.7				
Controls	CBI Time and ter	mperature zor	ne control		
PCDF Controls	0				
Delayed Start Stat	Yes				
San Code	2110				





25.0 Main Heating 2	None
Combi keep hot type	None
Combi boiler type	Standard Combi
Flow Temperature	Normal (> 45°C)
Heat Emitter	Radiators
Is MHS Pumped	Pump in heated space
Fan Assisted Flue	Yes
Flue Type	Balanced

29.0 Hot Water Cylinder	None	
SAP Code	901	
Water use <= 125 litres/person/day	Yes	
Solar Panel	No	
Waste Water Heat Recovery Storage System	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Flue Gas Heat Recovery System	No	
Water Heating	Main Heating 1	
28.0 Water Heating	HWP From main heating 1	
Community Heating	None	

### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£28	B 85	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 97	





	007780 - HT - Kinner	rton - Det			Issu	ued on Da	te 05/1	L2/2019
Assessment	As Designed - As			Prop Type	Ref 0077	780-SAP-Kii	nnerton-D_D	)S
Reference								
Property	Plot, Moorthorpe W	ay , Owlthorpe						
SAP Rating		83 B	DER	18.	.76	TER		19.76
Environmental		85 B	% DER <ter< td=""><td></td><td></td><td>5.06</td><td></td><td></td></ter<>			5.06		
CO₂ Emissions (t/year)		1.51	DFEE	55.	50	TFEE		61.70
General Requirements	Compliance	Pass	% DFEE <tfee< td=""><td></td><td></td><td>10.04</td><td></td><td></td></tfee<>			10.04		
	r. George Leadley, Ge orge.leadley@thefes		01904 656271,			Assessor I	D P71	9-0001
	ant Homes Central	5. e o le contra						
SUMMARY FOR INPUT	DATA FOR: New Build	d (As Designed)						
Orientation	East							
Property Tenure	Unknov	vn						
Transaction Type	New dv	velling						
Terrain Type	Suburb							
1.0 Property Type	House,	Detached						
2.0 Number of Storeys	2							
3.0 Date Built	2018							
4.0 Sheltered Sides	2							
5.0 Sunlight/Shade	Average	e or unknown						
6.0 Measurements								
6.0 Measurements			Heat Loss Perimet	er Inte	rnal Floor		verage Stor	
6.0 Measurements		<b>Ground Floor:</b>	27.72 m	er Inte	43.53 m <sup>2</sup>		2.72 ו	m
							_	m
6.0 Measurements 7.0 Living Area	35.08	<b>Ground Floor:</b>	27.72 m	er Inte	43.53 m <sup>2</sup>		2.72 ו	m
		<b>Ground Floor:</b>	27.72 m		43.53 m <sup>2</sup>		2.72 ו	m
7.0 Living Area		Ground Floor: 1st Storey:	27.72 m		43.53 m <sup>2</sup>		2.72 ו	m
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls	ter Precise 163.35	Ground Floor: 1st Storey: calculation	27.72 m	m²	43.53 m <sup>2</sup> 44.82 m <sup>2</sup>		2.72 I 2.36 I	m m
7.0 Living Area  8.0 Thermal Mass Parame Thermal Mass	ter Precise	Ground Floor: 1st Storey:	27.72 m	m²	43.53 m² 44.82 m²	Карра	2.72 I 2.36 I	m m
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls	ter Precise 163.35	Ground Floor: 1st Storey: calculation	27.72 m 27.72 m	m² kJ/m²K	43.53 m <sup>2</sup> 44.82 m <sup>2</sup>		2.72 I 2.36 I	m m
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description	ter Precise 163.35	Ground Floor: 1st Storey:  calculation  Construction  Cavity wall: plasterbo	27.72 m 27.72 m	m² kJ/m²K	43.53 m² 44.82 m² U-Value (W/m²K)	Kappa (kJ/m²K)	2.72 I 2.36 I	m m Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall	ter Precise 163.35	Ground Floor: 1st Storey:  calculation  Construction  Cavity wall: plasterbo	27.72 m 27.72 m	m² kJ/m²K	43.53 m² 44.82 m² U-Value (W/m²K)	Kappa (kJ/m²K)	2.72 I 2.36 I	Nett Area (m²) 121.37
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description	Type Cavity Wall  Construction	Construction  Cavity wall: plasterbo cavity, any outside sto	27.72 m 27.72 m	m² kJ/m²K	43.53 m² 44.82 m² U-Value (W/m²K)	Kappa (kJ/m²K)	2.72 I 2.36 I Gross Area (m²) 140.94 Kappa (kJ/m²K)	Nett Area (m²) 121.37
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall	Type Cavity Wall  Construction Plasterboard of	Ground Floor: 1st Storey:  calculation  Construction  Cavity wall: plasterbo	27.72 m 27.72 m	m² kJ/m²K	43.53 m² 44.82 m² U-Value (W/m²K)	Kappa (kJ/m²K)	2.72 I 2.36 I	Nett Area (m²) 121.37
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs	Type Cavity Wall  Construction Plasterboard of	Construction  Cavity wall : plasterbo cavity, any outside struction on timber frame on timber frame	27.72 m 27.72 m	m² kJ/m²K	43.53 m <sup>2</sup> 44.82 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.72 t 2.36 t 2.36 t 2.36 t 40.94 Kappa (kJ/m²K) 9.00 9.00	Nett Area (m²) 121.37  Area (m²) 75.72 133.95
7.0 Living Area  8.0 Thermal Mass Paramer Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type Cavity Wall  Construction Plasterboard of	Construction  Cavity wall : plasterbo cavity, any outside sto	27.72 m 27.72 m	m² kJ/m²K	43.53 m² 44.82 m² U-Value (W/m²K)	Kappa (kJ/m²K)	2.72 I 2.36 I 2.	Nett Area (m²) 121.37 Area (m²) 75.72 133.95
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs	Type  Cavity Wall  Construction  Plasterboard of Plasterboard	Construction  Cavity wall : plasterbo cavity, any outside struction on timber frame on timber frame	27.72 m 27.72 m	m² kJ/m²K	43.53 m² 44.82 m²  U-Value (W/m²k) 0.24	Kappa (kJ/m²K) 60.00	2.72 t 2.36 t 2.36 t 2.36 t 40.94 Kappa (kJ/m²K) 9.00 9.00	Nett Area (m²) 121.37  Area (m²) 75.72 133.95
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs Description  Cold Roof  10.2 Internal Ceilings	Type  Cavity Wall  Construction  Plasterboard of Plasterboard	Construction  Cavity wall : plasterbe cavity, any outside store timber frame on timber frame  Construction	27.72 m 27.72 m	m² kJ/m²K	U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.72 I 2.36 I 2.36 I Gross Area (m²) 140.94  Kappa (kJ/m²K) 9.00 9.00  Gross Area (m²)	Nett Area (m²) 121.37  Area (m²) 75.72 133.95  Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs Description  Cold Roof	Type  Cavity Wall  Construction  Plasterboard of Plasterboard	Construction  Cavity wall : plasterbe cavity, any outside store timber frame on timber frame  Construction	27.72 m 27.72 m	m² kJ/m²K	U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.72 I 2.36 I 2.36 I Gross Area (m²) 140.94  Kappa (kJ/m²K) 9.00 9.00  Gross Area (m²)	Nett Area (m²) 121.37  Area (m²) 75.72 133.95  Nett Area (m²)





11.0 Heat Loss Floors  Description	Туре		Construction					U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor Exposed Floor Above Po	rch Expose	d Floor - Solid ed Floor -	Suspended concrete to Timber exposed floor			ists		0.16 0.15	75.00 20.00	43.53
	Timber	r								
11.2 Internal Floors  Description	(	Construction							Kappa (kJ/m²K)	Area (m²)
First Floor	ŀ	Plasterboard co	eiling, carpeted chipbo	ard floor					18.00	43.64
2.0 Opening Types Description	Data Source	Туре	Glazing		Glazing	_	G-value		Frame	U Value
		Half Glazed D	oor Double Low-E	Soft 0.05	Gap	Filled	0.63	Туре	Factor 0.70	(W/m²l 1.50
Patio Door	r Manufacture	Window	Double Low-E	Soft 0.05			0.63		0.70	1.50
Window	r Manufacture r	Window	Double Low-E	Soft 0.05			0.63		0.70	1.30
L3.0 Openings										
Name Openin	ng Type I	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang		Height Coun (m)	t Area (m²)	Curtain Closed
	•	[1] External Wa							2.86	
Front Window Window	,	[1] External Wa		None	0.00				5.01	
LH Window Window	,	[1] External Wa		None	0.00				0.92	
Rear Window Window Rear Patio Door Window	,	[1] External Wa		None	0.00				3.67	
Real Patio Door William	W [	[1] External Wa	all West	None	0.00				7.11	
14.0 Conservatory		None								
15.0 Draught Proofing		100				%				
L6.0 Draught Lobby		No								
17.0 Thermal Bridging		Calcula	te Bridges							
L7.1 List of Bridges										
Source Type	Bridge '	Туре			Length	Psi	Imported			
Independently assessed	E2 Othe	er lintels (inclu	ding other steel lintels	)	11.79	0.050	No			
Independently assessed	E3 Sill				7.27	0.034	No			
Independently assessed	E4 Jamb				27.00	0.040	No			
Independently assessed		und floor (norn			27.72	0.060	No			
Table K1 - Default		osed floor (no			2.59	0.320	No			
Table K1 - Default		osed floor (inv	•		2.59	0.320	No			
Independently assessed			within a dwelling		25.13	0.000	No			
Independently assessed Independently assessed		•	at ceiling level) at ceiling level)		8.95 18.76	0.123	No			
Independently assessed		ner (normal)	at ceiling level)		25.42	0.063	No No			
Independently assessed		ner (inverted -	- internal area greater	than		-0.069	No			
Y-value		0.037				W/m²K				
8.0 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			



Windows open in hot weather

Windows fully open



Cross ve	entilation possible		Yes				
Night Ve	entilation		No				
Air chan	ge rate		8.00				
Mechanical	Ventilation					<del></del>	
Mechanio	cal Ventilation Syste	m Present	Yes				
Approve	ed Installation		No			<del></del>	
	ical Ventilation da	ta Type	Database				
Туре		7,70		extract ventilat	tion -	<del> </del>	
, , , , ,			decentralise				
MV Refe	erence Number		500230				
Duct Typ	ре		Flexible				
19.1 Mechanica	Il extract ventilation	on - Dece	ntralised			<del></del>	
SFP	Fan/Room Type	Count					
0.16	Through Wall Fan Kitchen						
0.16	Through Wall Fan Other We						
	Room						
0.18		2					
	Other Wet Room						
20 0 Fans Open	r Fireplaces, Flues						 
20.0 rans, Oper	i Fireplaces, Flues		MHS	SHS	Other	Total	
Number of (	Chimneys		0		0	0	
Number of o			0		0	0	
	ntermittent fans					0	
	passive vents Jueless gas fires					0	
21.0 Fixed Cooli		Г	No			 7	 
	ing system	L	110				
22.0 Lighting							
Internal		г				7	
	mber of light fittir	=	11				
	mber of L.E.L. fitti		11			_	
	age of L.E.L. fitting	S	100.00			%	
External		-				7	
External	lights fitted		No				
23.0 Electricity	Tariff	[	Standard				
24.0 Main Heat	ing 1	[	Database				
Percentage	of Heat	[	100			%	
Database Re	ef. No.	[	18204				
Fuel Type		[	Mains gas				
Main Heatin	ng	[	BGW				
SAP Code		[	104				
In Winte	er	Ī	89.9				
In Sumn	ner	Ī	86.7			_ 	
Controls		Ī	CBI Time and te	mperature zon	e control	Ī	
PCDF Contro	ols	F	0	•		Ī	
Delayed Sta		-	Yes			Ī	





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

### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Tunical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£30	B 84	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2,5 kWp	£3.500 - £5.500	£303	A 94	





Property Reference	007780 - H	Γ - Lathbur	v - Det			Issi	ied on Da	te 05/1	12/2019
Assessment	As Designed				Prop Type			thbury-D_DS	
Reference	713 Designed	и 713/ Орр			ттор турс	iter der	000711 201	,	
Property	Plot , Moor	thorpe Wa	y , Owlthorpe						
SAP Rating			85 B	DER	16	.18	ΓER		17.11
Environmental			85 B	% DER <ter< td=""><td></td><td></td><td>5.44</td><td></td><td></td></ter<>			5.44		
CO <sub>2</sub> Emissions (t/yea	r)		1.85	DFEE	51	.84	TFEE		58.23
General Requiremen	-		Pass	% DFEE <tfee< td=""><td></td><td></td><td>10.97</td><td></td><td></td></tfee<>			10.97		
	Mr. George Lea george.leadley	-	ge Leadley, Tel: oup.com	01904 656271,			Assessor I	D P71	9-0001
	Avant Homes C		•						
SUMMARY FOR INPU	T DATA FOR: N	lew Build (	As Designed)						
Orientation		East			1				
Property Tenure		Unknown			]				
Transaction Type		New dwe			]				
Terrain Type		Suburban			1				
1.0 Property Type		House, De	etached		1				
2.0 Number of Storeys		2			1				
3.0 Date Built		2018			1				
4.0 Sheltered Sides		2			1				
		<u> </u>			<u></u>				
5.0 Sunlight/Shade		Average c	or unknown						
5.0 Sunlight/Shade		Average o	or unknown		]				
6.0 Measurements		Average o		Heat Loss Perime	ter Inte	rnal Floor	Area A	verage Stor	ev Height
		Average c		Heat Loss Perime	ter Inte	rnal Floor 62.87 m²		verage Stor	-
		Average o			l ter Inte			_	m
		32.53	Ground Floor:	31.77 m	ter Inte	62.87 m <sup>2</sup>		2.38 ו	m
6.0 Measurements	neter		Ground Floor: 1st Storey:	31.77 m		62.87 m <sup>2</sup>		2.38 ו	m
6.0 Measurements 7.0 Living Area	neter	32.53	Ground Floor: 1st Storey:	31.77 m		62.87 m <sup>2</sup>		2.38 ו	m
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Param	neter	32.53 Precise ca	Ground Floor: 1st Storey:	31.77 m	] m²	62.87 m <sup>2</sup>		2.38 ו	m
7.0 Living Area 8.0 Thermal Mass Param Thermal Mass	neter	32.53  Precise ca 173.08	Ground Floor: 1st Storey:	31.77 m	] m²	62.87 m <sup>2</sup>		2.38 ו	m
7.0 Living Area 8.0 Thermal Mass Paran Thermal Mass 9.0 External Walls		32.53  Precise ca  173.08	Ground Floor: 1st Storey: alculation Construction	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup>	Карра	2.38 I 2.70 I	m M
7.0 Living Area 8.0 Thermal Mass Paran Thermal Mass 9.0 External Walls Description External Wall	<b>Type</b> Cavity Wa	32.53  Precise ca  173.08	Ground Floor: 1st Storey: alculation Construction Cavity wall : plasterbo	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t Gross Area (m²) 161.54	Nett Area (m²) 130.27
7.0 Living Area 8.0 Thermal Mass Paran Thermal Mass 9.0 External Walls Description External Wall	<b>Type</b> Cavity Wa	32.53  Precise ca  173.08	Ground Floor: 1st Storey: alculation Construction Cavity wall : plasterbo	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t Gross Area (m²) 161.54	Nett Area (m²) 130.27
7.0 Living Area 8.0 Thermal Mass Paran Thermal Mass 9.0 External Walls Description External Wall	Type Cavity Wa	32.53  Precise ca  173.08  C  II C  cs	Ground Floor: 1st Storey: alculation Construction Cavity wall : plasterbo	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t Gross Area (m²) 161.54	Nett Area (m²) 130.27
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description External Wall  9.2 Internal Walls Description	Type  Cavity Wa  Con	32.53  Precise ca  173.08  C  II C  cs	Ground Floor: 1st Storey:  alculation  Construction Cavity wall: plasterboavity, any outside st	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t Gross Area (m²) 161.54 Kappa (kJ/m²K)	Nett Area (m²) 130.27
7.0 Living Area 8.0 Thermal Mass Paran Thermal Mass 9.0 External Walls Description External Wall 9.2 Internal Walls Description Ground Floor	Type  Cavity Wa  Con  Plas  Plas	32.53  Precise ca 173.08  Construction  Atterboard on total sterboard	Ground Floor: 1st Storey:  alculation  Construction Cavity wall: plasterboavity, any outside st	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t Gross Area (m²) 161.54 Kappa (kJ/m²K) 9.00	Nett Area (m²) 130.27  Area (m²) 91.63
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type  Cavity Wa  Con  Plas  Plas	32.53  Precise ca 173.08  Construction  Atterboard on total sterboard	Ground Floor: 1st Storey:  alculation  Construction Cavity wall: plasterbox avity, any outside st	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t 2.70 t 3.70 t 4.70 t 4.	Nett Area (m²) 130.27 Area (m²) 91.63 192.78
7.0 Living Area  8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block	Type  Cavity Wa  Con  Plas  Plas	32.53  Precise ca 173.08  Construction  Atterboard on the sterboard on the	Ground Floor: 1st Storey:  alculation  Construction Cavity wall: plasterbox avity, any outside st	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m² 62.87 m²  U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 3.70 t 3.00 t 3.	Nett Area (m²) 130.27  Area (m²) 91.63 192.78 51.23
7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description External Wall 9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block 10.0 External Roofs	Type  Cavity Wa  Con  Plas  Plas  Den	32.53  Precise ca 173.08  Construction  Sterboard on the	Ground Floor: 1st Storey:  alculation  Construction Cavity wall : plasterboavity, any outside st	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m <sup>2</sup> 62.87 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 3.00 s 4.00 s 4.00 s 4.00 s 5.00 s 75.00 s	Nett Area (m²) 130.27 Area (m²) 91.63 192.78 51.23
7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block  10.0 External Roofs Description  Cold Roof	Type  Cavity Wa  Con  Plas  Plas  Den	32.53  Precise ca 173.08  Construction  Sterboard on the	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall : plasterboavity, any outside st  timber frame timber frame sterboard on dabs  Construction	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m² 62.87 m² U-Value (W/m²K) 0.24  U-Value (W/m²K)	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t 2.70 t 2.70 t 3.70 t 3.00 t 3.	Nett Area (m²) 130.27  Area (m²) 91.63 192.78 51.23  Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block  10.0 External Roofs Description	Type  Cavity Wa  Con  Plas  Plas  Den  Type  External P	32.53  Precise ca 173.08  Construction  Sterboard on the	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall : plasterboavity, any outside st  timber frame timber frame sterboard on dabs  Construction	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m² 62.87 m² U-Value (W/m²K) 0.24  U-Value (W/m²K)	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t 2.70 t 2.70 t 3.70 t 3.00 t 3.	Nett Area (m²) 130.27  Area (m²) 91.63 192.78 51.23  Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall  9.2 Internal Walls Description  Ground Floor First Floor Ground Floor Block  10.0 External Roofs Description  Cold Roof  10.2 Internal Ceilings	Type  Cavity Wa  Con  Plas  Plas  Den  Type  External P	32.53  Precise ca 173.08  Construction Sterboard on the s	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall : plasterboavity, any outside st  timber frame timber frame sterboard on dabs  Construction	31.77 m 31.77 m	] m² ] kJ/m²K	62.87 m² 62.87 m² U-Value (W/m²K) 0.24  U-Value (W/m²K)	Kappa (kJ/m²K) 60.00 Kappa (kJ/m²K)	2.38 t 2.70 t 2.	Nett Area (m²) 130.27  Area (m²) 91.63 192.78 51.23  Nett Area (m²) 62.87





11.0 Heat Loss Floors  Description	Туре		Construction					U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Grour	nd Floor - Solid	or - Solid Suspended concrete floor, carpeted						75.00	62.87
11.2 Internal Floors  Description		Construction							Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard co	eiling, carpeted chipbo	ard floor					18.00	62.87
12.0 Opening Types										
Description	Data Source	Туре	Glazing		Glazing Gap	Argon Filled	G-valu	ie Frame Type	Frame Factor	U Value (W/m²K)
Half Glazed Door	Manufacture r	e Half Glazed D	oor Double Low-E	Soft 0.05	•		0.63		0.70	1.50
Patio Door	Manufacture r	Window	Double Low-E	Soft 0.05			0.63		0.70	1.50
Window	Manufacture r	e Window	Double Low-E	Soft 0.05			0.63		0.70	1.30
13.0 Openings										
Name Ope	ening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang		Height Cou (m)	nt Area (m²)	Curtain Closed
Front Door Half	f Glazed Door	[1] External Wa	all East						3.80	
Front Window Win	idow	[1] External Wa	all East	None	0.00				11.41	
Rear Window Win	idow	[1] External Wa	all West	None	0.00				7.51	
	ndow	[1] External Wa		None	0.00				7.11	
	ndow	[1] External Wa		None	0.00				0.72	
LH Window Win	ndow	[1] External Wa	all South	None	0.00				0.72	
14.0 Conservatory		None								
15.0 Draught Proofing		100				%				
16.0 Draught Lobby		No								
17.0 Thermal Bridging		Calcula	te Bridges							
17.1 List of Bridges										
Source Type	Bridge				Length	Psi	Imported			
Independently assess		er lintels (inclu	ding other steel lintels		21.05	0.050	No			
Independently assess		I.			16.08	0.034	No			
Independently assess			221)		35.70	0.040	No			
Independently assess Independently assess		ound floor (norn	within a dwelling		31.77 31.77	0.000	No No			
Independently assess		ves (insulation	_		16.78	0.123	No			
Independently assess		able (insulation			14.98	0.063	No			
Independently assess		orner (normal)	ac coming level,		20.34	0.058	No			
Y-value		0.032				W/m²K				
18.0 Pressure Testing		Yes								
Designed AP <sub>50</sub>		5.00				m <sup>3</sup> /(h.m <sup>2</sup>	) @ 50 Pa			
Property Tested ?		<u> </u>								
As Built AP <sub>50</sub>						m³/(h.m²	) @ 50 Pa			
19.0 Mechanical Venti	lation				<del></del> _					
Summer Overheat										

Windows open in hot weather Cross ventilation possible Night Ventilation

Air change rate

Vindows fully open
Yes
No
8.00

**Mechanical Ventilation** 





Mechanical Ventilation System Present Yes No Approved Installation Mechanical Ventilation data Type Database Туре Mechanical extract ventilation decentralised MV Reference Number 500230 **Duct Type** Flexible 19.1 Mechanical extract ventilation - Decentralised **SFP** Fan/Room Count Type 0.16 Through Wall 1 Fan Kitchen 0.16 Through Wall 2 Fan Other Wet Room 0.18 In Room Fan 2 Other Wet Room 20.0 Fans, Open Fireplaces, Flues Other MHS SHS **Total Number of Chimneys** 0 0 0 Number of open flues 0 0 0 Number of intermittent fans 0 Number of passive vents 0 Number of flueless gas fires 0 21.0 Fixed Cooling System No 22.0 Lighting Internal Total number of light fittings 16 Total number of L.E.L. fittings 16 Percentage of L.E.L. fittings 100.00 % **External** External lights fitted No 23.0 Electricity Tariff Standard Database 24.0 Main Heating 1 Percentage of Heat 100 % Database Ref. No. 18493 Fuel Type Mains gas Main Heating BGW SAP Code 104 89.9 In Winter In Summer 86.7 Controls CBI Time and temperature zone control **PCDF Controls** 0 **Delayed Start Stat** Yes Sap Code 2110 Flue Type Balanced Fan Assisted Flue Is MHS Pumped Pump in heated space





SAP Code		901	
Water use	<= 125 litres/person/day	Yes	
Solar Panel		No	
Waste Wat Storage Sys	er Heat Recovery stem	No	
	er Heat Recovery ous System 2	No	
	er Heat Recovery ous System 1	No	
Flue Gas He	eat Recovery System	No	
Water Hea	ting	Main Heating 1	
28.0 Water He	ating	HWP From main heating 1	
Community	y Heating	None	

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£31	B 86	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 93	





Property Reference	007780 - HT	- Napsbury -	Det				Issued on Da	ite 05/2	12/2019
Assessment	As Designed	- As			Prop Ty	pe Ref 0	07780-SAP-Na	apsbury-D_D	S
Reference									
Property	Plot , Moort	horpe Way , (	Owlthorpe						
SAP Rating			83 B	DER		17.92	TER		18.53
Environmental			83 B	% DER <ter< td=""><td></td><td></td><td>3.30</td><td></td><td></td></ter<>			3.30		
CO <sub>2</sub> Emissions (t/y	ear)		2.25	DFEE		60.46	TFEE		66.91
General Requirem	ents Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td>9.65</td><td></td><td></td></tfe<>	E		9.65		
Assessor Details	Mr. George Lead george.leadley@			1904 656271,			Assessor I	D P71	9-0001
Client	Avant Homes Co	entral							
SUMMARY FOR INF	PUT DATA FOR: No	ew Build (As	Designed)						
Orientation		East							
<b>Property Tenure</b>		Unknown							
Transaction Type		New dwelling	5						
Terrain Type		Suburban							
1.0 Property Type		House, Detac	hed						
2.0 Number of Storey	s	3							
3.0 Date Built		2018							
4.0 Sheltered Sides		2							
5.0 Sunlight/Shade		Average or ur	nknown						
6.0 Measurements									
		0		leat Loss Perime	ter I	nternal Flo		verage Stor	_
			ound Floor: 1st Storey:	33.34 m 33.35 m		43.99 58.91		2.72 2.36	
			2nd Storey:	26.59 m		33.81		2.12	
7.0 Living Area		29.00			m²				
8.0 Thermal Mass Par	ameter	Precise calcul	ation		1				
Thermal Mass		168.22			kJ/m²k	(			
9.0 External Walls									
Description	Туре	Const	truction			U-Valı (W/m²		Gross Area (m²)	Nett Area (m²)
External Wall (GF)	Cavity Wal			ard on dabs, AAC b	lock, filled	0.24	60.00	64.20	52.47
External Wall (1F+)	Cavity Wal	l Cavity	/, any outside stru y wall : plasterboa /, any outside stru	ard on dabs, AAC b	lock, filled	0.24	60.00	126.81	112.84
		cavicy	,,, 00.00.00 00.0						

## 10.0 External Roofs

Garage Wall

Stud Wall

9.2 Internal Walls
Description

Ground Floor

Second Floor

Ground Floor Block

First Floor Block

First Floor



Solid Wall

Timber Frame

Construction

Plasterboard on timber frame

Plasterboard on timber frame

Plasterboard on timber frame

Dense block, plasterboard on dabs

Dense block, plasterboard on dabs

Regs Region: England Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.12r02

0.33

0.12

9.00

9.00

24.59

29.15

Area

(m<sup>2</sup>)

77.19

115.12

120.97

8.92

28.74

26.56

29.15

Карра

 $(kJ/m^2K)$ 

9.00

9.00

9.00

75.00

75.00

Solid wall: plasterboard on dabs, insulation, any

Timber framed wall (one layer of plasterboard)

outside structure



		•	Constr	uction				U-Value (W/m²K)		•	Gross Area (m²)	Nett Are (m²)
Cold Roof	Exte	rnal Plane Roof	Plaster	board, insulat	ed at ceilin	g level		0.11	9.0	00	43.46	43.46
Warm Roof		rnal Slope Roof		board, insulat				0.16	9.0		23.40	23.40
Stud Roof	Exte	rnal Slope Roof	Plaster	board, insulat	ed slope			0.12	9.0	00	4.54	4.54
10.2 Internal Ceilin Description	ngs	Construction									Карра	Area
•											(kJ/m²K)	(m²)
Ground Floor		Plasterboard co	eiling, ca	arpeted chipbo	oard floor						9.00	38.35
First Floor		Plasterboard co	eiling, ca	arpeted chipbo	oard floor						9.00	33.81
11.0 Heat Loss Floo Description	ors Type	2	Constr	uction					U-V		Карра	Area
									(W/ı		(kJ/m²K)	(m²)
Ground Floor			-	nded concrete	•				0.:		75.00	43.99
Floor Above Gara	age Expo Timb	sed Floor - oer	Timber	exposed floor	r, insulatior	ı between jo	ists		0.:	15	20.00	20.56
11.2 Internal Floor	s											
Description		Construction									Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ce	oiling co	arnoted chinhe	ard floor						18.00	38.35
Second Floor		Plasterboard ce	-								18.00	33.81
12.0 Opening Type	es											
Description	Data Source			Glazing		Glazing Gap	Argon Filled	G-val		rame Type	Frame Factor	U Value (W/m²K
Half Glazed Door	Manufactur r	e Half Glazed D	oor	Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Patio Door	Manufactur r	re Window		Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Window	Manufactur r	re Window		Double Low-E	Soft 0.05			0.63	3		0.70	1.30
Garage Door	*	e Solid Door										1.50
13.0 Openings										_	_	
Name	Opening Type	Location		Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Coun	t Area (m²)	Curtain Closed
Front Door	Half Glazed Door	[1] External Wa	. ,	East							2.86	
	Window	[1] External Wa		East	None	0.00					0.92	
LH Window	Window	[2] External Wa		South	None	0.00					0.72	
Rear Window	Window	[2] External Wa	. ,	West	None	0.00					5.91	
	Window	[1] External Wa		West	None	0.00					6.10	
	Window	[2] External Wa	. ,	East	None	0.00					7.34	
Rear Window	Window	[1] External Wa		West	None	0.00					1.85	
Front Garage Door	Solid Door	[3] Garage Wal	I	East							1.97	
14.0 Conservatory		None										
15.0 Draught Proof		100					%					
16.0 Draught Lobb	у	No										



17.1 List of Bridges



Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E1 Steel lintel with perforated steel base plate	0.94	0.500	No
Independently assessed	E2 Other lintels (including other steel lintels)	10.66	0.050	No
Independently assessed	E2 Other lintels (including other steel lintels)	6.80	0.048	No
Independently assessed	E3 Sill	10.66	0.034	No
Independently assessed	E3 Sill	2.73	0.034	No
Independently assessed	E4 Jamb	20.40	0.040	No
Independently assessed	E4 Jamb	16.80	0.040	No
Table K1 - Approved	E4 Jamb	4.20	0.050	No
Independently assessed	E5 Ground floor (normal)	23.59	0.067	No
Table K1 - Approved	E5 Ground floor (normal)	9.76	0.160	No
Table K1 - Default	E20 Exposed floor (normal)	9.47	0.320	No
Table K1 - Default	E21 Exposed floor (inverted)	9.47	0.320	No
Independently assessed	E6 Intermediate floor within a dwelling	39.04	0.000	No
Independently assessed	E10 Eaves (insulation at ceiling level)	6.75	0.123	No
Independently assessed	E10 Eaves (insulation at ceiling level)	3.37	0.125	No
Table K1 - Default	E24 Eaves (insulation at ceiling level - inverted)	11.14	0.240	No
Independently assessed	E11 Eaves (insulation at rafter level)	18.13	0.037	No
Independently assessed	E12 Gable (insulation at ceiling level)	9.90	0.063	No
Independently assessed	E12 Gable (insulation at ceiling level)	1.67	0.073	No
Independently assessed	E13 Gable (insulation at rafter level)	6.58	0.080	No
Independently assessed	E16 Corner (normal)	20.33	0.058	No
Independently assessed	E16 Corner (normal)	10.89	0.063	No
Table K1 - Approved	E16 Corner (normal)	2.72	0.090	No
Independently assessed	E17 Corner (inverted – internal area greater than external area)	4.73	-0.069	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	2.72	-0.090	No
Table K1 - Default	R6 Flat ceiling	18.13	0.060	No
Y-value	0.055		W/m²K	
18.0 Pressure Testing	Yes			
Designed AP <sub>50</sub>	5.00	·	m³/(h.n	n²) @ 50 Pa
Property Tested ?	Property Tested ?			
As Built AP <sub>50</sub>	As Built AP <sub>50</sub>			
19.0 Mechanical Ventilation	1			

## **Summer Overheating**

Windows fully open Windows open in hot weather Cross ventilation possible Night Ventilation No 8.00 Air change rate

### **Mechanical Ventilation**

Mechanical Ventilation System Present Yes Approved Installation Mechanical Ventilation data Type Database Туре Mechanical extract ventilation decentralised MV Reference Number 500230 **Duct Type** Flexible

## 19.1 Mechanical extract ventilation - Decentralised

SFP Fan/Room Count Type Through Wall 1 0.16 Fan Kitchen





0.16	Through Wall 3 Fan Other Wet					
	Room					
0.18	In Room Fan 2					
	Other Wet					
	Room					
20.0 Fans, Op	en Fireplaces, Flues	MHS	SHS	Other	Total	
Number o	of Chimneys	0	00	0	0	
	of open flues	0		0	0	
	of intermittent fans of passive vents				0	
	of flueless gas fires				0 0	
21.0 Fixed Co		No			 1	
22.0 Lighting						
Internal						
	number of light fittings	17			1	
	number of L.E.L. fittings	17			1	
	ntage of L.E.L. fittings	100.00			] %	
External	86 0. 2.2.280	200.00			] ^	
	nal lights fitted	No			1	
					J	
23.0 Electricit	y Tariff	Standard				
24.0 Main He	_	Database				
Percentag		100			%	
Database		18493				
Fuel Type		Mains gas				
Main Hea	ting	BGW			_	
SAP Code		104			_	
In Wir		89.9			_	
In Sun	nmer	86.7			]	
Controls		CBI Time and te	emperature zo	ne control	]	
PCDF Con		0			]	
Delayed S	tart Stat	Yes			]	
Sap Code		2110			]	
Flue Type		Balanced			]	
Fan Assist		Yes			]	
Is MHS Pu	·	Pump in heated	d space		]	
Heat Emit		Radiators	Α.		]	
Flow Tem		Normal (> 45°C			]	
Combi boi	• •	Standard Comb	)I		]	
Combi kee	ep hot type	None				
25.0 Main He	ating 2	None				
Communi	ty Heating	None			1	
28.0 Water Ho		HWP From mai	n heating 1		i	
Water He	_	Main Heating 1			i	
	3				_	





•		•
29.0 Hot Water Cylinder	None	
SAP Code	901	I.
Water use <= 125 litres/person/day	Yes	I
Solar Panel	No	
Storage System	INO	
Instantaneous System 2 Waste Water Heat Recovery	No	
Waste Water Heat Recovery	No	I
Instantaneous System 1		
Waste Water Heat Recovery	No	
Flue Gas Heat Recovery System	No	

### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

Typical Cost Typical Savings Ratings after improvement per year SAP rating Environmental Impact \$
Solar photovoltaic panels, 2.5 kWp £3,500 - £5,500 £303 B 91





Property Reference	007780 - H1	「- Nithsdale	- End			Is	sued on Da	te 05/1	12/2019
Assessment	As Designed	signed - As				op Type Ref 007780-SAP-Nithsdale-E_DS			
Reference									
Property	Plot , Moor	thorpe Way	, Owlthorpe						
SAP Rating			84 B	DER		17.77	TER		18.62
Environmental			86 B	% DER <ter< td=""><td></td><td></td><td>4.55</td><td></td><td></td></ter<>			4.55		
CO <sub>2</sub> Emissions (t/year)			1.33	DFEE	4	19.38	TFEE		53.50
General Requirements Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td>7.70</td><td></td><td></td></tfe<>	E		7.70			
	Mr. George Lea			01904 656271,			Assessor I	D P71	9-0001
	george.leadley(		ıp.com						
Client	Avant Homes C	entral							
SUMMARY FOR INPU	IT DATA FOR: N	ew Build (As	s Designed)						
Orientation		East							
Property Tenure		Unknown							
Transaction Type		New dwelling	ng						
Terrain Type		Suburban							
1.0 Property Type		House, End-	-Terrace						
2.0 Number of Storeys		2							
3.0 Date Built		2018							
4.0 Sheltered Sides		2							
5.0 Sunlight/Shade		Average or	unknown						
6.0 Measurements									
				Heat Loss Perime	ter Ir	nternal Floo		verage Stor	-
		G	round Floor: 1st Storey:	18.45 m 18.45 m		41.88 r 41.88 r		2.38	
				10.10 111		12.001		2.70	
7.0 Living Area		38.86			m²				
8.0 Thermal Mass Parai	meter	Precise calc	ulation						
Thermal Mass		185.91			kJ/m²K				
9.0 External Walls  Description	Turne	Com	struction			U-Value	Vanna	Gross Area	Nett Area
Description	Туре	Coi	istruction			(W/m²k		(m <sup>2</sup> )	(m²)
External Wall	Cavity Wa		ity wall : plasterboity, any outside st	oard on dabs, AAC b	lock, filled	0.24	60.00	93.84	78.68
		Cav	ity, arry outside st	ructure					
9.1 Party Walls  Description	Туре	Con	struction				U-Value	Карра	Area
Description	Туре	Coi	istruction				(W/m²K)	(kJ/m²K)	(m²)
Party Wall	Filled Cavi Edge Seali		gle plasterboard o cks, cavity or cavit	n dabs both sides, li	ghtweight a	ggregate	0.00	110.00	40.95
9.2 Internal Walls									
Description	Con	struction						Kappa (kJ/m²K)	Area (m²)
Ground Floor	Plas	terboard on tim	nber frame					9.00	48.69
First Floor	Plasterboard on time		nber frame					9.00	98.12
10.0 External Roofs									
Description	Туре	Cor	struction			U-Value		Gross Area	Nett Area
Cold Roof	Evtornal	lane Roof Disc	sterboard, insulate	ad at cailing lovel		(W/m²k		(m²)	(m²) 41.88
COIU NOOI	External P	iaile NUUI Plas	sterboard, Ilisulati	eu at ceimig ievel		0.11	9.00	41.88	41.00





10.2 Internal Ceiling	gs	0	i de								
Description Const		truction							Kappa (kJ/m²K)	Area (m²)	
Ground Floor		Plasterboard ceiling, carpeted chipboard floor						9.00	41.88		
11.0 Heat Loss Floo										.,	
Description	Тур	e	Cons	truction					U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Gro	ound Flo	or - Solid Susp	ended concrete	floor, car	oeted			0.15	75.00	41.88
11.2 Internal Floors	6										
Description Cons		truction							Kappa (kJ/m²K)	Area (m²)	
First Floor		Plasterboard ceiling, carpeted chipboard floor							18.00	41.88	
12.0 Opening Types	s										
Description	Data Sour	се Тур	e	Glazing		Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Half Glazed Door	Manufact r	ure Hal	f Glazed Door	Double Low-E	Soft 0.05			0.63		0.70	1.50
Patio Door	Manufact r	ure Wir	ndow	Double Low-E	Soft 0.05			0.63		0.70	1.50
Window	Manufact r	ure Wir	ndow	Double Low-E	Soft 0.05			0.63		0.70	1.30
13.0 Openings											
	Opening Type	Locat	ion	Orientation	Curtain Type	Overhang Ratio	Wide Overhang		leight Cour (m)	nt Area (m²)	Curtain Closed
Front Door	Half Glazed Door	[1] Ex	ternal Wall	East	туре	Natio	Overnang	(111)	(111)	2.07	Ciosea
Front Window	Window	[1] Ex	ternal Wall	East	None	0.00				4.70	
LH Window	Window	[1] Ex	ternal Wall	South	None	0.00				0.92	
Rear Window	Window	[1] Ex	ternal Wall	West	None	0.00				3.67	
Rear Patio Door	Window	[1] Ex	ternal Wall	West	None	0.00				3.80	
14.0 Conservatory			None								
15.0 Draught Proofing		100				%					
16.0 Draught Lobby	/		No								
17.0 Thermal Bridg	ing		Calculate Bri	idges							
17.1 List of Bridges											
Source Type	Brid	ge Type				Length	Psi	Imported			
Independently ass		Other lint	els (including o	ther steel lintels	)	10.29	0.050	No			
Independently as						7.50	0.034	No			
Independently ass		amb				25.50	0.040	No			
Independently as			oor (normal)			18.45	0.060	No			
Independently ass			iate floor withirnsulation at ceil			18.45 10.40	0.000 0.123	No No			
. ,		•		,		8.05	0.063	No			
	Independently assessed E12 Gable (insulation at ceiling level) Independently assessed E16 Corner (normal)			ing ievel)		10.17	0.058	No			
Table K1 - Default	• • • • • • • • • • • • • • • • • • • •			ellings		10.17	0.120	No			
Table K1 - Default	Table K1 - Default P1 Party wall - Ground floor				8.05	0.160	No				
Table K1 - Default	P2 Party wall - Intermediate floor within a			8.05	0.000	No					
dwelling  Table K1 - Default P4 Party wall - Roof (		l - Roof (insulat	ion at ceiling lev	el)	8.05	0.240	No				
Y-value			0.055				W/m²K				
18.0 Pressure Testi	ng		Yes								
Designed AP <sub>50</sub>		5.00				m³/(h m²	) @ 50 Pa				
Property Tested	· · · · · · · · · · · · · · · · · · ·		12.23				/ (	, _ 55.4			
As Built AP <sub>50</sub>	• •						m <sup>3</sup> //h m <sup>2</sup>	) @ 50 Pa			
AS DUIL AP50							111 / (11.111	, w 50 Pd			





### 19.0 Mechanical Ventilation

### **Summer Overheating**

Windows open in hot weather Cross ventilation possible **Night Ventilation** 

Air change rate

**Mechanical Ventilation** 

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

MV Reference Number

**Duct Type** 

Windows fully open

Yes

No

8.00

Yes No

Mechanical extract ventilation -

decentralised

500230

Flexible

### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Coun
	Туре	
0.16	Through Wall	1
	Fan Kitchen	
0.18	In Room Fan	1
	Other Wet	
	Room	
0.16	Through Wall	1
	Fan Other We	t
	Room	

### 20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

## 21.0 Fixed Cooling System

## 22.0 Lighting

Internal

**External** 

Total number of light fittings Total number of L.E.L. fittings

Percentage of L.E.L. fittings

External lights fitted

No

No

11

11

100.00

### 23.0 Electricity Tariff

24.0 Main Heating 1

Percentage of Heat Database Ref. No.

Fuel Type Main Heating SAP Code

In Winter In Summer Database 100

Standard

18204 Mains gas

**BGW** 104

89.9 86.7



Regs Region: England **Elmhurst Energy Systems** SAP2012 Calculator (Design System) version 4.12r02

%

%



Controls	CBI Time and temperature zone control
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

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 Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	None	

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

**Typical savings Ratings after improvement Typical Cost** per year **SAP** rating **Environmental Impact** £4,000 - £6,000 Solar water heating £29 **Typical savings** Ratings after improvement **Typical Cost** per year SAP rating **Environmental Impact** Solar photovoltaic panels, 2.5 kWp £3,500 - £5,500 £303 A 95





<b>Property Reference</b>	007780 - H	T - Nithsdale	- Mid			Iss	ued on Da	te 05/1	12/2019
Assessment	As Designe	d - As/Opp			Prop Type I	Ref 007	780-SAP-Ni	thsdale-M_0	DS .
Reference									
Property	Plot , Mooi	rthorpe Way,	Owlthorpe						
SAP Rating			84 B	DER	16.	71	TER		17.30
Environmental			87 B	% DER <ter< td=""><td></td><td></td><td>3.41</td><td></td><td></td></ter<>			3.41		
CO₂ Emissions (t/yea	ar)		1.24	DFEE	44.	20	TFEE		46.50
<b>General Requiremer</b>	nts Compliance	:	Pass	% DFEE <tfee< td=""><td></td><td></td><td>4.94</td><td></td><td></td></tfee<>			4.94		
Assessor Details	Mr. George Le	adlev George	e Leadley Tel·	01904 656271			Assessor I	D P71	9-0001
	george.leadley			01304 030271,			A33C3301 1	171	.5 0001
Client	Avant Homes (	Central							
SUMMARY FOR INPU	JT DATA FOR: N	New Build (A	s Designed)						
Orientation		East			1				
Property Tenure		Unknown			<u></u>				
Transaction Type		New dwellin	ng		j				
Terrain Type		Suburban							
1.0 Property Type		House, Mid	-Terrace		]				
2.0 Number of Storeys		2			]				
3.0 Date Built		2018							
4.0 Sheltered Sides		3							
5.0 Sunlight/Shade		Average or	unknown		]				
6.0 Measurements									
		G		Heat Loss Perimet	ter Inte	<b>nal Floor</b> 41.88 m <sup>2</sup>		_	<b>ey Height</b> m
		G	Fround Floor: 1st Storey:	Heat Loss Perimet 10.40 m 10.40 m	ter Intei	<b>nal Floor</b> 41.88 m <sup>2</sup> 41.88 m <sup>2</sup>	2	verage Stor 2.38   2.70	m
7.0 Living Area		38.86	iround Floor:	10.40 m	ter Inter	41.88 m <sup>2</sup>	2	2.38	m
7.0 Living Area 8.0 Thermal Mass Para	meter		fround Floor: 1st Storey:	10.40 m	7	41.88 m <sup>2</sup>	2	2.38	m
	meter	38.86	fround Floor: 1st Storey:	10.40 m	7	41.88 m <sup>2</sup>	2	2.38	m
8.0 Thermal Mass Parar Thermal Mass	meter	38.86 Precise calc	fround Floor: 1st Storey:	10.40 m	] m²	41.88 m <sup>2</sup>	2	2.38	m
8.0 Thermal Mass Parai	meter Type	38.86  Precise calc  211.02	fround Floor: 1st Storey:	10.40 m	] m²	41.88 m <sup>2</sup> 41.88 m <sup>2</sup>	Kappa	2.38 ( 2.70 )	m m
8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls	Туре	38.86  Precise calc  211.02  Cor	1st Storey:  ulation	10.40 m 10.40 m	] m² ] kJ/m²K	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	2	2.38 (2.70 )	m m
8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description		38.86  Precise calc 211.02  Cor	1st Storey:  ulation	10.40 m 10.40 m	] m² ] kJ/m²K	41.88 m <sup>2</sup> 41.88 m <sup>2</sup>	Kappa (kJ/m²K)	2.38 ( 2.70 )	M M Nett Area (m²)
8.0 Thermal Mass Paral Thermal Mass 9.0 External Walls Description	Туре	38.86  Precise calc 211.02  Cor	at Storey:  ulation  ustruction	10.40 m 10.40 m	] m² ] kJ/m²K	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 (2.70 )	M M Nett Area (m²)
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall	Туре	38.86  Precise calc 211.02  Cor all Cav	at Storey:  ulation  ustruction	10.40 m 10.40 m	] m² ] kJ/m²K	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K) 60.00	2.38 (2.70 )  Gross Area (m²) 52.88	Nett Area (m²) 38.64
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description	<b>Type</b> Cavity W	38.86  Precise calc 211.02  Cor all Cav cav	aulation  instruction  wity wall : plasterbodity, any outside struction	10.40 m 10.40 m	] m² ] kJ/m²K ock, filled	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 (2.70 )  Gross Area (m²) 52.88	Nett Area (m²) 38.64
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls	Type Cavity W Type	38.86  Precise calco 211.02  Corall Cav cav	aulation  instruction  wity wall : plasterbodity, any outside struction	10.40 m 10.40 m  ard on dabs, AAC blucture	] m² ] kJ/m²K ock, filled	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.38 (2.70 (	Nett Area (m²) 38.64
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description	Type Cavity W  Type Filled Cav	38.86  Precise calco 211.02  Corall Cav cav	aulation  instruction  wity wall : plasterbodity, any outside struction  gle plasterboard of	10.40 m 10.40 m  ard on dabs, AAC blucture	] m² ] kJ/m²K ock, filled	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 (2.70 (	Nett Area (m²) 38.64
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls Description Party Wall	Type  Cavity W.  Type  Filled Cav  Edge Sea	38.86  Precise calco 211.02  Corall Cav cav	aulation  instruction  wity wall : plasterbodity, any outside struction  gle plasterboard of	10.40 m 10.40 m  ard on dabs, AAC blucture	] m² ] kJ/m²K ock, filled	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.38 i 2.70 i 2.38 i 2.70 i 2.38 i 2.	Nett Area (m²) 38.64  Area (m²) 81.91
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls Description Party Wall	Type  Cavity W  Type  Filled Cav Edge Sea	38.86  Precise calc 211.02  Cor all Cav cav  Vity with Sing ling bloom	at Storey:  Ist Storey:  Iulation  Instruction  Ivity wall: plasterbook  Instruction  Instructio	10.40 m 10.40 m  ard on dabs, AAC blucture	] m² ] kJ/m²K ock, filled	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 (2.70 )  Gross Area (m²) 52.88  Kappa (kJ/m²K) 110.00	Nett Area (m²) 38.64  Area (m²) 81.91
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description	Type  Cavity W  Type  Filled Cave Edge Sea	38.86  Precise calce 211.02  Cor all Cav cav  Cor vity with Sing blo  instruction	aulation  struction  wity wall : plasterboity, any outside struction  gle plasterboard or cks, cavity or cavity  aber frame	10.40 m 10.40 m  ard on dabs, AAC blucture	] m² ] kJ/m²K ock, filled	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 (2.70 (	Nett Area (m²) 38.64  Area (m²) 81.91  Area (m²)
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type  Cavity W  Type  Filled Cave Edge Sea	38.86  Precise calce 211.02  Cor all Cav cav  Cor vity with Sing ling blo  instruction  sterboard on tin	aulation  struction  wity wall : plasterboity, any outside struction  gle plasterboard or cks, cavity or cavity  aber frame	10.40 m 10.40 m  ard on dabs, AAC blucture	] m² ] kJ/m²K ock, filled	41.88 m <sup>2</sup> 41.88 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 (2.70 (	Nett Area (m²) 38.64  Area (m²) 81.91  Area (m²) 48.69
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor	Type  Cavity W  Type  Filled Cave Edge Sea	38.86  Precise calc 211.02  Cor all Cav cav  Cor vity with Sing ling blo  nstruction  sterboard on tin sterboard on tin	aulation  struction  wity wall : plasterboity, any outside struction  gle plasterboard or cks, cavity or cavity  aber frame	10.40 m 10.40 m  ard on dabs, AAC blucture	] m² ] kJ/m²K ock, filled	U-Value (W/m²K) 0.24  U-Value	Kappa (kJ/m²K) 60.00  U-Value (W/m²K) 0.00	2.38 (2.70 (	Nett Area (m²) 38.64  Area (m²) 81.91  Area (m²) 48.69 98.12
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs	Type  Cavity W  Type  Filled Cave Edge Sea  Con  Pla  Pla  Type	38.86  Precise calce 211.02  Cor all Cav cav  Cor wity with Sing ling blow  nstruction  sterboard on tin sterboard on tin cor	aulation  struction  wity wall: plasterboard or cavity, any outside struction  gle plasterboard or cks, cavity or cavity  mber frame mber frame	10.40 m 10.40 m  ard on dabs, AAC blucture  n dabs both sides, lig	] m² ] kJ/m²K ock, filled	U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K) 0.00	2.38 i 2.70 i 2.	Nett Area (m²) 38.64  Area (m²) 81.91  Area (m²) 48.69 98.12





10.2 Internal Ceilings Description	Const	ruction								Kappa (kJ/m²K)	Area (m²)
Ground Floor	Plaste	rboard ceiling,	carpeted chipbo	oard floor						9.00	41.88
11.0 Heat Loss Floors											
Description	Туре	Cons	truction					U-Va (W/m		Kappa (kJ/m²K)	Area (m²)
Ground Floor	Ground Floo	or - Solid Suspe	ended concrete	floor, carp	eted			0.1		75.00	41.88
11.2 Internal Floors Description	Const	ruction								Kappa (kJ/m²K)	Area (m²)
First Floor	Plaste	rboard ceiling,	carpeted chipbo	ard floor						18.00	41.88
12.0 Opening Types											
Description	Data Source Typ	е	Glazing		Glazing Gap	Argon Filled	G-valu		ame ype	Frame Factor	U Value (W/m²K)
Half Glazed Door	Manufacture Half	Glazed Door	Double Low-E	Soft 0.05			0.63		,,,,	0.70	1.50
Patio Door	Manufacture Win	dow	Double Low-E	Soft 0.05			0.63			0.70	1.50
Window	r Manufacture Win r	dow	Double Low-E	Soft 0.05			0.63			0.70	1.30
13.0 Openings											
Name Open	ing Type Locati	on	Orientation	Curtain Type	Overhang Ratio	Wide Overhang		Height (m)	Count	t Area (m²)	Curtain Closed
Front Door Half G	Glazed Door [1] Ex	ternal Wall	East							2.07	
Front Window Wind	ow [1] Ex	ternal Wall	East	None	0.00					4.70	
Rear Window Wind	ow [1] Ex	ternal Wall	West	None	0.00					3.67	
Rear Patio Door Wind	ow [1] Ex	ternal Wall	West	None	0.00					3.80	
14.0 Conservatory		None									
15.0 Draught Proofing		100				%					
16.0 Draught Lobby		No									
17.0 Thermal Bridging		Calculate Bri	dges								
17.1 List of Bridges											
Source Type	Bridge Type				Length	Psi	Imported				
Independently assessed		els (including o	ther steel lintels	)	9.60	0.050	No				
Independently assessed Independently assessed					6.81 22.80	0.034 0.040	No No				
Independently assessed		nor (normal)			10.40	0.040	No				
Independently assessed		ate floor withir	n a dwelling		10.40	0.000	No				
Independently assessed		sulation at ceil	0		10.40	0.123	No				
Table K1 - Default	E18 Party wa	Il between dwe	ellings		20.34	0.120	No				
Table K1 - Default	P1 Party wall	- Ground floor			16.11	0.160	No				
Table K1 - Default	P2 Party wall dwelling	- Intermediate	floor within a		16.11	0.000	No				
Table K1 - Default		- Roof (insulati	ion at ceiling lev	el)	16.11	0.240	No				
Y-value		0.091				W/m²K					
18.0 Pressure Testing		Yes									
Designed AP₅o		5.00				m³/(h.m²	) @ 50 Pa				
Property Tested ?											
As Built AP <sub>50</sub>						m <sup>3</sup> /(h.m <sup>2</sup>	) @ 50 Pa				

19.0 Mechanical Ventilation

**Summer Overheating** 





Windov	vs open in hot weather	r Windows 1	fully open			
Cross ve	entilation possible	Yes				
Night V	entilation	No				
Air char	nge rate	8.00				
Mechanical	l Ventilation					
Mechani	ical Ventilation System Pr	esent Yes				
Approve	ed Installation	No				
	nical Ventilation data T	ype Database				
Туре			al extract ventila	ition -		
MV/ Pof	erence Number	500230	seu			
Duct Ty		Flexible				
19.1 Mechanica SFP 0.16 0.18	al extract ventilation - Fan/Room Co Type Through Wall 1 Fan Kitchen In Room Fan 1 Other Wet	Decentralised unt				
0.16	Room Through Wall 1 Fan Other Wet Room					
20.0 Fans, Oper	n Fireplaces, Flues					
Number of		<b>MHS</b> 0 0	SHS	Other 0 0	Total 0 0 0 0 0	
21.0 Fixed Cool	ling System	No			1	
22.0 Lighting						
Internal	b	11			٦	
	umber of light fittings	11				
	umber of L.E.L. fittings	100.00			] 0/	
External	age of L.E.L. fittings	100.00			%	
	l liabta fittad	Nie			٦	
	l lights fitted	No				
23.0 Electricity	Tariff	Standard				
24.0 Main Heat	ting 1	Database				
Percentage		100			<u></u> %	
Database R	ef. No.	18204				
Fuel Type		Mains gas				
Main Heatir	ng	BGW				
SAP Code		104				
In Winte	er	89.9				
In Sumr	ner	86.7			1	
Controls			emperature zor	ne control	Ī	
PCDF Contr	ols	0	1		Ī	
		1 -				





25.0 Main Heating 2	None
Combi keep hot type	None
Combi boiler type	Standard Combi
Flow Temperature	Normal (> 45°C)
Heat Emitter	Radiators
Is MHS Pumped	Pump in heated space
Fan Assisted Flue	Yes
Flue Type	Balanced
Sap Code	2110
Delayed Start Stat	Yes

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 Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
SAP Code	901
29.0 Hot Water Cylinder	None

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£29	B 86	
	Typical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 96	





Property Reference 0	07780 - HT -	Paignton - I	Mid			Iss	ued on Da	te 05/1	L2/2019
Assessment A	s Designed -	As/Opp			Prop Typ	e Ref 007	780-SAP-Pa	ignton-M_D	S
Reference									
Property P	lot , Moorth	orpe Way , (	Owlthorpe						
SAP Rating			86 B	DER	1	14.38	TER		15.11
Environmental			88 B	% DER <ter< td=""><td></td><td></td><td>4.86</td><td></td><td></td></ter<>			4.86		
CO <sub>2</sub> Emissions (t/year)			1.47	DFEE	4	1.32	TFEE		44.23
General Requirements Co	ompliance		Pass	% DFEE <tfee< td=""><td></td><td></td><td>6.59</td><td></td><td></td></tfee<>			6.59		
	George Leadl ge.leadley@t			)1904 656271,			Assessor I	D P71	9-0001
	t Homes Cen								
SUMMARY FOR INPUT DA	TA FOR: Nev	w Build (As	Designed)						
Orientation	E	East							
Property Tenure	Ī	Unknown							
Transaction Type	Ī	New dwelling	J						
Terrain Type	=	Suburban			İ				
1.0 Property Type	Ī	House, Mid-T	errace						
2.0 Number of Storeys	=	3							
3.0 Date Built	=	2018							
4.0 Sheltered Sides	[3	3							
5.0 Sunlight/Shade	7	Average or ur	almaum						
6.0 Measurements			IKHOWH						
		Gro		<b>Heat Loss Perimet</b> 9.05 m 9.05 m 9.05 m	er In	<b>ternal Floo</b> i 37.97 m 37.97 m 37.97 m	2	verage Stor 2.38 i 2.70 i 2.70 i	m m
		Gro	bund Floor: 1st Storey:	9.05 m 9.05 m	er In	37.97 m	2	2.38 i 2.70 i	m m
6.0 Measurements		Gro	bound Floor: 1st Storey: 2nd Storey:	9.05 m 9.05 m		37.97 m	2	2.38 i 2.70 i	m m
6.0 Measurements 7.0 Living Area	· [	<b>Gro</b> 2 22.99	bound Floor: 1st Storey: 2nd Storey:	9.05 m 9.05 m		37.97 m	2	2.38 i 2.70 i	m m
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Parameter	· [	Gro 2 22.99 Precise calcul 152.25	bound Floor: 1st Storey: 2nd Storey:	9.05 m 9.05 m	m²	37.97 m 37.97 m 37.97 m	2 2 2 2 Kappa	2.38 i 2.70 i 2.70 i	m m m
7.0 Living Area 8.0 Thermal Mass Parameter Thermal Mass 9.0 External Walls	· [	Gro 2 22.99 Precise calcul 152.25 Const	bound Floor: 1st Storey: 2nd Storey: ation	9.05 m 9.05 m	m² kJ/m²K	37.97 m 37.97 m 37.97 m	2 2 2	2.38 i 2.70 i 2.70 i	m m m
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description	Type	Gro 222.99 Precise calcul 152.25 Const	bound Floor: 1st Storey: 2nd Storey: lation  truction  y wall : plasterbook, any outside struction	9.05 m 9.05 m 9.05 m ard on dabs, AAC bloucture ard on dabs, AAC bloucture	m² kJ/m²K	37.97 m 37.97 m 37.97 m	Kappa	2.38 i 2.70 i 2.70 i	m m m Nett Area (m²)
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall (GF)	Type  Cavity Wall	Gro 222.99 Precise calcul 152.25 Const	bound Floor: 1st Storey: 2nd Storey: lation  truction  y wall : plasterbook y, any outside strucy wall : plasterbook	9.05 m 9.05 m 9.05 m ard on dabs, AAC bloucture ard on dabs, AAC bloucture	m² kJ/m²K	37.97 m 37.97 m 37.97 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K)	2.38 i 2.70 i 2.70 i Gross Area (m²) 21.58	Nett Area (m²)
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall (GF) External Wall (1F+)	Type  Cavity Wall	Gro 222.99 Precise calcul 152.25 Const Cavity Cavity cavity	bound Floor: 1st Storey: 2nd Storey: lation  truction  y wall : plasterbook y, any outside strucy wall : plasterbook	9.05 m 9.05 m 9.05 m ard on dabs, AAC bloucture ard on dabs, AAC bloucture	m² kJ/m²K	37.97 m 37.97 m 37.97 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K)	2.38 i 2.70 i 2.70 i Gross Area (m²) 21.58	Nett Area (m²)
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall (GF) External Wall (1F+)  9.1 Party Walls	Type  Cavity Wall  Cavity Wall	Const Cavity Cavity Const With Plaste	bound Floor: 1st Storey: 2nd Storey: lation  truction  y wall : plasterbook y, any outside struct y wall : plasterbook y, any outside struct y, any outside struct truction	9.05 m 9.05 m 9.05 m ard on dabs, AAC bloucture ard on dabs, AAC bloucture	m² kJ/m²K	37.97 m 37.97 m 37.97 m U-Value (W/m²K) 0.24 0.24	Kappa (kJ/m²K) 60.00 U-Value	2.38 i 2.70 i 2.70 i 2.70 i 21.58 48.87	Nett Area (m²) 11.70 37.86
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall (GF) External Wall (1F+)  9.1 Party Walls Description	Type  Cavity Wall  Cavity Wall  Type  Filled Cavity	Constitution of the cavity cavity cavity with Plaste AAC to cavity cavit	bound Floor: 1st Storey: 2nd Storey: lation  truction  y wall : plasterbook, any outside struky wall : plasterbook, any outside struktruction	9.05 m 9.05 m 9.05 m ard on dabs, AAC bloucture ard on dabs, AAC bloucture	m² kJ/m²K	37.97 m 37.97 m 37.97 m U-Value (W/m²K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 21.58 48.87 Kappa (kJ/m²K)	Nett Area (m²)  Area (m²)
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall (GF) External Wall (1F+)  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description Ground Floor	Type  Cavity Wall  Cavity Wall  Type  Filled Cavity Edge Sealing  Constr	Consist Cavity C	truction  y wall: plasterboody, any outside struction  truction  y any outside struction  truction  truction  erboard on dabs in the plaster of the plaster	9.05 m 9.05 m 9.05 m ard on dabs, AAC bloucture ard on dabs, AAC bloucture	m² kJ/m²K	37.97 m 37.97 m 37.97 m U-Value (W/m²K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 I 2.70 I 2.70 I 2.70 I 2.70 I 21.58 48.87 Kappa (kJ/m²K) 45.00	Nett Area (m²) 130.66  Area (m²) 94.68
7.0 Living Area  8.0 Thermal Mass Parameter Thermal Mass  9.0 External Walls Description  External Wall (GF) External Wall (1F+)  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description	Type  Cavity Wall  Cavity Wall  Type  Filled Cavity Edge Sealing  Constr  Plaster	Const  Cavity Ca	truction  y wall: plasterbook, any outside struction  truction  truction  truction  truction  erboard on dabs replaced on dab	9.05 m 9.05 m 9.05 m ard on dabs, AAC bloucture ard on dabs, AAC bloucture	m² kJ/m²K	37.97 m 37.97 m 37.97 m U-Value (W/m²K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 2.70 i 21.58 48.87 Kappa (kJ/m²K) 45.00	Nett Area (m²) 130.66  Area (m²)



10.0 External Roofs



Description		Type		Constru	uction				U-Value	Kar	ора (	Gross Area	Nett Area
		.,,,,							(W/m²K)		m²K)	(m²)	(m²)
Cold Roof		Extern	nal Plane Roof	Plasterb	oard, insulate	ed at ceili	ng level		0.11	9.0	00	37.97	37.97
10.2 Internal Ceilir Description	ngs		Construction									Карра	Area
												(kJ/m²K)	(m²)
Ground Floor			Plasterboard co	eiling, ca	rpeted chipbo	oard floor						9.00	37.97
First Floor			Plasterboard co	eiling, ca	rpeted chipbo	oard floor						9.00	37.97
11.0 Heat Loss Floo	ors	Tuno		Constru	iction					HW	alue	Vanna	Aros
Description		Type		Constru	iction					(W/i		Kappa (kJ/m²K)	Area (m²)
Ground Floor		Groun	nd Floor - Solid	Suspend	ded concrete	floor, carp	oeted			0.:	14	75.00	37.97
11.2 Internal Floor	S											W	
Description			Construction									Kappa (kJ/m²K)	Area (m²)
First Floor			Plasterboard co	eiling, car	rpeted chipbo	ard floor						18.00	37.97
Second Floor			Plasterboard ce	eiling, ca	rpeted chipbo	ard floor						18.00	37.97
12.0 Opening Type		_	_							_		_	
Description	Data S	Source	Туре	(	Glazing		Glazing Gap	Argon Filled	G-valu		rame Type	Frame Factor	U Value (W/m²K
Half Glazed Door	r Manu r	facture	Half Glazed D	oor [	Double Low-E	Soft 0.05			0.63			0.70	1.50
Patio Door	Manu r	facture	Window	[	Double Low-E	Soft 0.05			0.63			0.70	1.50
Window		facture	Window	[	Double Low-E	Soft 0.05			0.63			0.70	1.30
13.0 Openings													
Name	Opening Typ	e	Location		Orientation	Curtain Type	Overhang Ratio	Wide Overhang		Height (m)	Count	t Area (m²)	Curtain Closed
Front Door	Half Glazed D	Door	[1] External Wa	all (GF)	East	Турс	Ratio	Overnang	(111)	(111)		2.86	Closed
Front Window	Window		[1] External Wa	all (GF)	East	None	0.00					0.92	
Rear Window	Window		[2] External Wa	all (1F+)	West	None	0.00					6.12	
Rear Patio Door	Window		[1] External Wa	all (GF)	West	None	0.00					6.10	
Front Window	Window		[2] External Wa	ıll (1F+)	East	None	0.00					4.89	
14.0 Conservatory			None										
•			None 100					%					
15.0 Draught Proo	fing							%					
15.0 Draught Proo 16.0 Draught Lobb	fing		100	te Bridg	es			%					
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridg 17.1 List of Bridges	fing y ging		100 No	te Bridg	jes			%					
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridg 17.1 List of Bridges Source Type	fing yy ging s	Bridge	100 No Calcula				Length	Psi	Imported				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridge 17.1 List of Bridges Source Type Independently as	fing  yy  ging  s	E2 Oth	100 No Calcula  Type er lintels (include)	ding othe	er steel lintels		9.52	<b>Psi</b> 0.050	No				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridges 17.1 List of Bridges Source Type Independently as Independently as	fing by ging s ssessed ssessed	E2 Oth	100 No Calcula	ding othe	er steel lintels		9.52 4.75	<b>Psi</b> 0.050 0.048	No No				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridges 17.1 List of Bridges Source Type Independently as Independently as Independently as	fing by ging s ssessed ssessed ssessed	E2 Otho E2 Otho E3 Sill	Type er lintels (includer lint	ding othe	er steel lintels		9.52 4.75 8.83	Psi 0.050 0.048 0.034	No No No				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridges 17.1 List of Bridges Source Type Independently as Independently as Independently as Independently as	fing by ging s ssessed ssessed ssessed ssessed ssessed	E2 Otho E2 Otho E3 Sill E4 Jam	Type er lintels (include e	ding othe	er steel lintels		9.52 4.75 8.83 13.50	Psi 0.050 0.048 0.034 0.040	No No No				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridges 17.1 List of Bridges Source Type Independently as Independently as Independently as Independently as Independently as Independently as	ging s ssessed ssessed ssessed ssessed ssessed ssessed ssessed	E2 Otho E2 Otho E3 Sill E4 Jam E4 Jam	Type er lintels (include e	ding othe	er steel lintels		9.52 4.75 8.83 13.50 11.40	Psi 0.050 0.048 0.034 0.040 0.040	No No No No				
15.0 Draught Proof 16.0 Draught Lobb 17.0 Thermal Bridge 17.1 List of Bridges Source Type Independently as	ging s ssessed ssessed ssessed ssessed ssessed ssessed ssessed ssessed	E2 Otho E2 Otho E3 Sill E4 Jam E4 Jam E5 Gro	Type er lintels (include e	ding othe	er steel lintels		9.52 4.75 8.83 13.50 11.40 9.05	Psi 0.050 0.048 0.034 0.040 0.040 0.040	No No No No No				
15.0 Draught Proof 16.0 Draught Lobb 17.0 Thermal Bridge 17.1 List of Bridges Source Type Independently as	ging s ssessed	E2 Otho E2 Otho E3 Sill E4 Jam E4 Jam E5 Groot E6 Inte	Type er lintels (include e	ding othe ding othe nal) within a	er steel lintels er steel lintels dwelling		9.52 4.75 8.83 13.50 11.40 9.05 18.10	Psi 0.050 0.048 0.034 0.040 0.040 0.067 0.000	No No No No No No				
15.0 Draught Proof 16.0 Draught Lobb 17.0 Thermal Bridge 17.1 List of Bridges Source Type Independently as	ging ssessed	E2 Othe E2 Othe E3 Sill E4 Jam E4 Jam E5 Grou E6 Inte	Type er lintels (included by the lintels floor (normal ermediate floor ves (insulation at the lintels (insulation at the lintels floor ves (insulation at the l	ding other ding other ot	er steel lintels er steel lintels dwelling g level)		9.52 4.75 8.83 13.50 11.40 9.05 18.10 9.05	Psi 0.050 0.048 0.034 0.040 0.040 0.067 0.000 0.123	No No No No No No No				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridges Source Type Independently as Independently as	ging ssessed	E2 Othe E2 Othe E3 Sill E4 Jam E4 Jam E5 Groe E6 Inte E10 Eav E18 Pal	Type er lintels (included by the lintels (incl	ding other ding other all) within a at ceiling	er steel lintels er steel lintels dwelling g level)		9.52 4.75 8.83 13.50 11.40 9.05 18.10 9.05 31.14	Psi 0.050 0.048 0.034 0.040 0.040 0.067 0.000 0.123 0.120	No No No No No No No				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridges Source Type Independently as Independently as	ging ssessed ssessed ssessed ssessed ssessed ssessed ssessed ssessed ssessed stessessed stessessed stessessed stessessed stessessed stessessed	E2 Othe E2 Othe E3 Sill E4 Jam E5 Groe E6 Inte E10 Eav E18 Par P1 Part	Type er lintels (included by the lintels (included by the lintels) and floor (norm the ermediate floor ves (insulation arrty wall between the lintels).	ding other ding other al) within a at ceiling on dwellid	er steel lintels er steel lintels dwelling g level) ngs		9.52 4.75 8.83 13.50 11.40 9.05 18.10 9.05 31.14 16.78	Psi 0.050 0.048 0.034 0.040 0.040 0.067 0.000 0.123 0.120 0.160	No No No No No No No No				
Independently as Independently as Independently as Independently as Independently as Independently as Independently as Independently as	ging s ssessed ssessed ssessed ssessed ssessed ssessed ssessed ssessed stessessed stessessed stessessed stessessed stessessed stessessed	E2 Othe E2 Othe E3 Sill E4 Jam E5 Groe E6 Inte E10 Eav E18 Par P1 Part	Type er lintels (included and both and floor (normer mediate floor ves (insulation arty wall betweet y wall - Ground ty wall - Intermediate mediate mediate floor ves (insulation arty wall - Intermediate mediate mediate floor ves (insulation arty wall - Intermediate floor intermediate floor ves (insulation arty wall - Intermediate floor inte	ding other ding other al) within a at ceiling on dwellid	er steel lintels er steel lintels dwelling g level) ngs		9.52 4.75 8.83 13.50 11.40 9.05 18.10 9.05 31.14	Psi 0.050 0.048 0.034 0.040 0.040 0.067 0.000 0.123 0.120	No No No No No No No				
15.0 Draught Proo 16.0 Draught Lobb 17.0 Thermal Bridges Source Type Independently as Independently as	ging ssessed ssessed ssessed ssessed ssessed ssessed ssessed ssessed lt lt	E2 Othe E2 Othe E3 Sill E4 Jam E4 Jam E5 Groo E6 Inte E10 Eav E18 Part P1 Part dwellin	Type er lintels (included and both and floor (normer mediate floor ves (insulation arty wall betweet y wall - Ground ty wall - Intermediate mediate mediate floor ves (insulation arty wall - Intermediate mediate mediate floor ves (insulation arty wall - Intermediate floor intermediate floor ves (insulation arty wall - Intermediate floor inte	ding other ding other al) within a at ceiling on dwellid floor ediate flo	er steel lintels er steel lintels dwelling g level) ngs oor within a	)	9.52 4.75 8.83 13.50 11.40 9.05 18.10 9.05 31.14 16.78	Psi 0.050 0.048 0.034 0.040 0.040 0.067 0.000 0.123 0.120 0.160	No No No No No No No No				





					7
18.0 Pressure Tes	_	Yes			
Designed AP₅	0	5.00			m³/(h.m²) @ 50 Pa
Property Test	red ?				
As Built AP <sub>50</sub>					m³/(h.m²) @ 50 Pa
19.0 Mechanical	Ventilation				
Summer Ove	rheating				
Windows	open in hot weather	Windows fully o	pen		
Cross ven	tilation possible	Yes			
Night Ver	ntilation	No			
Air chang	e rate	8.00			
Mechanical V	/entilation				<u>-</u>
Mechanica	l Ventilation System Present	Yes			
Approved	I Installation	No			=
	cal Ventilation data Type	Database			=
Туре	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Mechanical extr	act ventilatio	n -	=
.,,,,		decentralised			
MV Refer	ence Number	500230			
Duct Type	9	Flexible			
40.4.1.1.1					<del></del>
SFP SFP	extract ventilation - Dece Fan/Room Count	entralised			
0.16	<b>Type</b> Through Wall 1				
0.16	Fan Kitchen				
0.16	Through Wall 3				
	Fan Other Wet				
0.40	Room				
0.18	In Room Fan 1 Other Wet				
	Room				
20.0 Fans, Open	Fireplaces, Flues				
		MHS	SHS	Other	Total
Number of Ch		0		0	0
Number of or	termittent fans	0		0	0
Number of pa					0
	ueless gas fires				0
21.0 Fixed Coolin	g System	No			]
22.0 Lighting					
Internal					
Total nun	nber of light fittings	16			]
	nber of L.E.L. fittings	16			1
	ge of L.E.L. fittings	100.00			-   %
External	0.				<u>.</u>
	ights fitted	No			1
23.0 Electricity Ta		Standard			]
					1
24.0 Main Heatin		Database			]
Percentage of		100			
Database Ref	. No.	18493			





25.0 Main Heating 2	None
Combi keep hot type	None
Combi boiler type	Standard Combi
Flow Temperature	Normal (> 45°C)
Heat Emitter	Radiators
Is MHS Pumped	Pump in heated space
Fan Assisted Flue	Yes
Flue Type	Balanced
Sap Code	2110
Delayed Start Stat	Yes
PCDF Controls	0
Controls	CBI Time and temperature zone control
In Summer	86.7
In Winter	89.9
SAP Code	104
Main Heating	BGW
Fuel Type	Mains gas

29.0 Hot Water Cylinder	None	
SAP Code	901	
Water use <= 125 litres/person/day	Yes	
Solar Panel	No	
Waste Water Heat Recovery Storage System	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Flue Gas Heat Recovery System	No	
Water Heating	Main Heating 1	
28.0 Water Heating	HWP From main heating 1	
Community Heating	None	

### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

**Typical savings** Ratings after improvement **Typical Cost** per year **SAP** rating **Environmental Impact** Solar water heating £4,000 - £6,000 £30 B 87 **Typical savings Ratings after improvement Typical Cost** per year SAP rating **Environmental Impact** £3,500 - £5,500 Solar photovoltaic panels, 2.5 kWp £303 A 95





Property Reference	007780 - HT	- Paignton	ı - Semi			Issi	ued on Da <sup>.</sup>	te 05/1	2/2019
Assessment	As Designed				Prop Type			ignton-S DS	
Reference	/ is Designed	713			ттор турс	Nei de	, , , , , , , , , , , , , , , , , , , ,	. <u>6</u>	
Property	Plot , Moort	horpe Way	, Owlthorpe						
SAP Rating			85 B	DER	15	.90	TER		16.53
Environmental			86 B	% DER <ter< td=""><td></td><td></td><td>3.81</td><td></td><td></td></ter<>			3.81		
CO₂ Emissions (t/yea	ır)		1.63	DFEE	48	.23	TFEE		51.86
General Requiremen	ts Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td>7.00</td><td><u> </u></td><td></td></tfe<>	E		7.00	<u> </u>	
	_		ge Leadley, Tel: (	)1904 656271,			Assessor I	D P71	9-0001
	george.leadley@ Avant Homes Co		oup.com						
SUMMARY FOR INPU			As Designed)						
	1 57(17(10))10	,	to besigned,		7				
Orientation		East			_ 				
Property Tenure		Unknown			]				
Transaction Type		New dwell	ling						
Terrain Type		Suburban			_				
1.0 Property Type		House, Ser	mi-Detached						
2.0 Number of Storeys		3							
3.0 Date Built		2018							
4.0 Sheltered Sides		2			1				
5.0 Sunlight/Shade		Average or	r unknown						
5.0 Sunlight/Shade 6.0 Measurements				Heat Loss Perime	ter Inte	ernal Floor 37.97 m²		verage Stor	-
			ı		ter Inte		!	_	m
			I Ground Floor:	17.44 m	ter Inte	37.97 m <sup>2</sup>	:	2.38 ו	m m
6.0 Measurements			Found Floor:	17.44 m 17.44 m	ter Inte	37.97 m <sup>2</sup> 37.97 m <sup>2</sup>	:	2.38 i 2.70 i	m m
6.0 Measurements	neter	(	Fround Floor: 1st Storey: 2nd Storey:	17.44 m 17.44 m		37.97 m <sup>2</sup> 37.97 m <sup>2</sup>	:	2.38 i 2.70 i	m m
6.0 Measurements 7.0 Living Area	neter	22.99	Fround Floor: 1st Storey: 2nd Storey:	17.44 m 17.44 m		37.97 m <sup>2</sup> 37.97 m <sup>2</sup>	:	2.38 i 2.70 i	m m
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran	neter	22.99 Precise cal 197.38	Fround Floor: 1st Storey: 2nd Storey:	17.44 m 17.44 m	] m²	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value	Карра	2.38 I 2.70 I 2.70 I	m m n
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description	Туре	22.99  Precise cal 197.38	Ground Floor: 1st Storey: 2nd Storey: culation	17.44 m 17.44 m 17.44 m	] m² ] kJ/m²K	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 I 2.70 I 2.70 I	m m m Nett Area (m²)
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass		22.99  Precise cal 197.38  Ca	Ground Floor: 1st Storey: 2nd Storey:	17.44 m 17.44 m 17.44 m	] m² ] kJ/m²K	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value	Карра	2.38 I 2.70 I 2.70 I	m m
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description	Туре	22.99  Precise cal 197.38  Ca ca ca ca	Ground Floor: 1st Storey: 2nd Storey: culation construction	ard on dabs, AAC bucture	] m² ] kJ/m²K	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 I 2.70 I 2.70 I	m m M
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall (GF)	<b>Type</b> Cavity Wal	22.99  Precise cal 197.38  Ca ca ca ca	Ground Floor: 1st Storey: 2nd Storey: culation construction avity wall: plasterbo avity, any outside striavity wall: plasterbo	ard on dabs, AAC bucture	] m² ] kJ/m²K	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.38 i 2.70 i 2.70 i Gross Area (m²) 41.60	Nett Are. (m²) 31.72
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall (GF) External Wall (1F+)	<b>Type</b> Cavity Wal	Precise cal 197.38  Ca ca ca	Ground Floor: 1st Storey: 2nd Storey: culation construction avity wall: plasterbo avity, any outside striavity wall: plasterbo	ard on dabs, AAC bucture	] m² ] kJ/m²K	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.38 i 2.70 i 2.70 i Gross Area (m²) 41.60	Nett Area (m²) 31.72
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description External Wall (GF) External Wall (1F+)  9.1 Party Walls	<b>Type</b> Cavity Wal	22.99  Precise cal 197.38  Ca ca ca ca cty with Sin	Ground Floor: 1st Storey: 2nd Storey:    Culation	ard on dabs, AAC b ucture ard on dabs, both sides, li	m² kJ/m²K lock, filled	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00	2.38 i 2.70 i 2.70 i 41.60 94.19	Nett Are. (m²) 31.72 81.74
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall (GF)  External Wall (1F+)  9.1 Party Walls Description  Party Wall  9.2 Internal Walls	Type  Cavity Wal  Cavity Wal  Type  Filled Cavit Edge Sealin	22.99  Precise cal 197.38  Ca ca ca ca cty with Sin	Ground Floor: 1st Storey: 2nd Storey: culation  construction  avity wall: plasterbo avity wall: plasterbo avity wall: plasterbo avity, any outside struction  construction  construction  avity many outside struction  construction  and construction	ard on dabs, AAC b ucture ard on dabs, both sides, li	m² kJ/m²K lock, filled	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 41.60 94.19 Kappa (kJ/m²K) 110.00	Nett Are. (m²) 31.72 81.74 Area (m²)
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall (GF)  External Wall (1F+)  9.1 Party Walls Description  Party Wall	Type  Cavity Wal  Cavity Wal  Type  Filled Cavit Edge Sealin	Precise cal 197.38  Ca ca II Ca ca ca ty with Sin	Ground Floor: 1st Storey: 2nd Storey: culation  construction  avity wall: plasterbo avity wall: plasterbo avity wall: plasterbo avity, any outside struction  construction  construction  avity many outside struction  construction  and construction	ard on dabs, AAC b ucture ard on dabs, both sides, li	m² kJ/m²K lock, filled	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 41.60 94.19 Kappa (kJ/m²K)	Nett Area (m²) 31.72 81.74 Area (m²) 65.33
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall (GF)  External Wall (1F+)  9.1 Party Walls Description  Party Wall  9.2 Internal Walls	Type Cavity Wal Cavity Wal Type Filled Cavit Edge Seali	Precise cal 197.38  Ca ca II Ca ca ca ty with Sin	Ground Floor:  1st Storey: 2nd Storey:  culation  culation  construction  avity wall: plasterbo avity, any outside struction avity, any outside struction  construction   ard on dabs, AAC b ucture ard on dabs, both sides, li	m² kJ/m²K lock, filled	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 41.60   94.19   Kappa (kJ/m²K) 110.00   Kappa	Nett Area (m²) 31.72 81.74 Area (m²) 65.33	
6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall (GF)  External Wall (1F+)  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description	Type Cavity Wal Cavity Wal  Type Filled Cavit Edge Sealin  Cons	22.99  Precise cal 197.38  Ca ca Il Ca ca ca ty with Sin ng blo	Ground Floor: 1st Storey: 2nd Storey: 2nd Storey: culation  culation  avity wall: plasterbo avity, any outside struction avity wall: plasterbo avity, any outside struction avity or cavity construction angle plasterboard or ocks, cavity or cavity amber frame amber frame amber frame	ard on dabs, AAC b ucture ard on dabs, both sides, li	m² kJ/m²K lock, filled	37.97 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 41.60 94.19 Kappa (kJ/m²K) 110.00	Nett Area (m²) 65.33  Area (m²)



10.0 External Roofs



Description	Туре		Constru					U-Value (W/m²K)	) (kJ/r	n²K)	Gross Area (m²)	Nett Area (m²)
Cold Roof	Exter	nal Plane Roof	Plasterl	ooard, insulate	ed at ceiling	g level		0.11	9.0	JÜ	37.97	37.97
10.2 Internal Ceilir Description	ngs	Construction									Kappa (kJ/m²K)	Area (m²)
Ground Floor		Plasterboard cei	ling, ca	rpeted chipbo	oard floor						9.00	37.97
First Floor		Plasterboard cei	ling, ca	rpeted chipbo	oard floor						9.00	37.97
11.0 Heat Loss Floo	ors											
Description	Туре	1	Constru	uction					U-Va (W/r		Kappa (kJ/m²K)	Area (m²)
Ground Floor	Grou	nd Floor - Solid	Suspen	ded concrete	floor, carpe	eted			0.3	15	75.00	37.97
11.2 Internal Floor Description	rs	Construction									Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard cei	ling, ca	rpeted chipbo	ard floor						18.00	37.97
Second Floor		Plasterboard cei	ling, ca	rpeted chipbo	ard floor						18.00	37.97
12.0 Opening Type  Description	es Data Source	Туре	(	Glazing		Glazing Gap	Argon Filled	G-val		rame Type	Frame Factor	U Value (W/m²K)
Half Glazed Door		e Half Glazed Do	or	Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Patio Door	r Manufacture r	e Window	I	Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Window	Manufacture r	e Window	ı	Double Low-E	Soft 0.05			0.63	3		0.70	1.30
13.0 Openings												
Name	Opening Type	Location		Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Coun	t Area (m²)	Curtain Closed
Front Door	Half Glazed Door	[1] External Wal	. ,	East							2.86	
Front Window	Window	[1] External Wal		East	None	0.00					0.92	
LH Window	Window	[2] External Wal	. ,	South	None	0.00					1.44	
Rear Window	Window Window	[2] External Wal		West	None	0.00					6.12	
Rear Patio Door Front Window	Window	[1] External Wal [2] External Wal	. ,	West	None	0.00					6.10	
	Willdow	[2] External war	I (IF+)	East	None	0.00					4.89	
14.0 Conservatory		None										
15.0 Draught Proo	fing	100					%					
16.0 Draught Lobb	У	No										



17.1 List of Bridges



Source Type	Bridge Type	Length	Psi	Imported
Independently assessed	E2 Other lintels (including other steel lintels)	9.52	0.050	No
Independently assessed	E2 Other lintels (including other steel lintels)	4.75	0.048	No
Independently assessed	E3 Sill	9.52	0.034	No
Independently assessed	E3 Sill	0.69	0.034	No
Independently assessed	E4 Jamb	17.70	0.040	No
Independently assessed	E4 Jamb	11.40	0.040	No
Independently assessed	E5 Ground floor (normal)	17.44	0.067	No
Independently assessed	E6 Intermediate floor within a dwelling	34.88	0.000	No
Independently assessed	E10 Eaves (insulation at ceiling level)	9.05	0.123	No
Independently assessed	E12 Gable (insulation at ceiling level)	8.39	0.063	No
Independently assessed	E16 Corner (normal)	10.80	0.058	No
Independently assessed	E16 Corner (normal)	4.77	0.063	No
Table K1 - Default	E18 Party wall between dwellings	15.57	0.120	No
Table K1 - Default	P1 Party wall - Ground floor	8.39	0.160	No
Table K1 - Default	P2 Party wall - Intermediate floor within a dwelling	16.78	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	8.39	0.240	No
Y-value	0.053		W/m²K	
18.0 Pressure Testing	Yes			
Designed AP₅o	5.00		m³/(h.r	n²) @ 50 Pa
Property Tested ?			<b>=</b>	
, ,			3 //1	2) 0 50 5
As Built AP <sub>50</sub>			1 m <sup>3</sup> /(h.r	n²) @ 50 Pa

#### **Summer Overheating**

Windows fully open Windows open in hot weather Cross ventilation possible Yes Night Ventilation No Air change rate 8.00

### **Mechanical Ventilation**

Mechanical Ventilation System Present Yes Approved Installation No Mechanical Ventilation data Type Mechanical extract ventilation decentralised 500230

Flexible

MV Reference Number

**Duct Type** 

### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.16	Through Wall	1
	Fan Kitchen	
0.16	Through Wall	3
	Fan Other Wet	
	Room	
0.18	In Room Fan	1
	Other Wet	
	Room	

#### 20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0





Number of intermittent fans Number of passive vents Number of flueless gas fires		0 0 0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	16	
Total number of L.E.L. fittings	16	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	Database	
Percentage of Heat	100	<del></del>
Database Ref. No.	18493	
Fuel Type	Mains gas	
Main Heating	BGW	
SAP Code	104	
In Winter	89.9	
In Summer	86.7	
Controls	CBI Time and temperature zone control	
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	
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	To a second	
Waste Water Heat Recovery	No	



Water use <= 125 litres/person/day

Instantaneous System 2 Waste Water Heat Recovery

Storage System

Solar Panel

No

No

Yes



		1
SAP Code	901	
29.0 Hot Water Cylinder	None	

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

**Typical savings Ratings after improvement Typical Cost** per year **SAP** rating **Environmental Impact** Solar water heating £4,000 - £6,000 £30 B 86 **Typical savings** Ratings after improvement **Typical Cost** per year SAP rating **Environmental Impact** Solar photovoltaic panels, 2.5 kWp £3,500 - £5,500 £303 A 94





		Davasalavimi	Dot				lee.	ied on Da	OF /4	2/2019
Property Reference	007780 - HT	- Ramsbury -	· Det				ISSU	ieu on Da	te 05/1	.2/2019
Assessment	As Designed	- As			Prop	Type Ref	0077	'80-SAP-Ra	msbury-D_C	S
Reference										
Property	Plot, Moorth	norpe Way , (	Owlthorpe							
SAP Rating			85 B	DER		15.80	T	TER		16.63
Environmental			85 B	% DER <ter< td=""><td></td><td></td><td></td><td>4.99</td><td></td><td></td></ter<>				4.99		
CO <sub>2</sub> Emissions (t/ye	ar)		2.02	DFEE		52.11	T	FEE		58.50
General Requireme	nts Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td></td><td>10.92</td><td></td><td></td></tfe<>	E			10.92		
Assessor Details	Mr. George Lead	-	-	01904 656271,			A	Assessor I	D P71	9-0001
Client	Avant Homes Co									
SUMMARY FOR INPL	JT DATA FOR: No	ew Build (As	Designed)							
Orientation		East								
Property Tenure		Unknown			Ħ					
Transaction Type		New dwelling	J							
Terrain Type		Suburban	<u> </u>		=					
1.0 Property Type		House, Detac	hed		╡					
2.0 Number of Storeys		2	incu		╡					
2.0 Number of Storeys					=					
3 0 Date Built		12018								
3.0 Date Built		2018			$\exists$					
4.0 Sheltered Sides		2	nknown							
4.0 Sheltered Sides 5.0 Sunlight/Shade			nknown							
4.0 Sheltered Sides		2	nknown	Heat Loss Barim	oter.	Interna	Floor	Λιος Λ	werage Stor	ov Height
4.0 Sheltered Sides 5.0 Sunlight/Shade		2 Average or u	nknown	Heat Loss Perimo	eter	Interna 74	Floor	Area A	werage Stor	-
4.0 Sheltered Sides 5.0 Sunlight/Shade		2 Average or u			eter	74		Area A	average Stor 2.38 i 2.70 i	n
4.0 Sheltered Sides 5.0 Sunlight/Shade		2 Average or u	ound Floor:	42.34 m	eter m²	74	.50 m²	Area A	2.38 ı	n
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area	meter	2 Average or un	ound Floor: 1st Storey:	42.34 m		74	.50 m²	Area A	2.38 ı	n
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter	Average or under the second of	ound Floor: 1st Storey:	42.34 m	m²	74 64	.50 m²	Area A	2.38 ı	n
<ul> <li>4.0 Sheltered Sides</li> <li>5.0 Sunlight/Shade</li> <li>6.0 Measurements</li> <li>7.0 Living Area</li> <li>8.0 Thermal Mass Para Thermal Mass</li> </ul>	meter	2 Average or un	ound Floor: 1st Storey:	42.34 m		74 64	.50 m²	Area A	2.38 ı	n
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter	Average or under the second of	ound Floor: 1st Storey:	42.34 m	m²	74 64 m²K U-	.50 m²	Area A Kappa (kJ/m²K)	2.38 ı	m m
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls		2 Average or un Group Gr	ound Floor: 1st Storey: lation	42.34 m 36.49 m	m²	74 64 m²K U- (W	.50 m <sup>2</sup> .86 m <sup>2</sup>	Карра	2.38 I 2.70 I	m Mett Area
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall	<b>Type</b> Cavity Wal	2 Average or un  Gro  22.35  Precise calcul  166.16  Cons  Cavit	ound Floor: 1st Storey: lation truction y wall : plasterb	42.34 m 36.49 m	m²	74 64 m²K U- (W	.50 m <sup>2</sup> .86 m <sup>2</sup> Value /m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t Gross Area (m²) 199.06	Nett Area (m²) 165.65
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall	<b>Type</b> Cavity Wal	2 Average or un Group Gr	ound Floor: 1st Storey: lation truction y wall : plasterb	42.34 m 36.49 m	m²	74 64 m²K U- (W	.50 m <sup>2</sup> .86 m <sup>2</sup> Value /m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 i 2.70 i	n Nett Area (m²)
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description External Walls Description Ground Floor	Type  Cavity Wal  Cons	2 Average or un  Gro  22.35  Precise calcul  166.16  Cons  Cavit cavity  struction	lation  truction  y wall : plasterb y, any outside st	42.34 m 36.49 m	m²	74 64 m²K U- (W	.50 m <sup>2</sup> .86 m <sup>2</sup> Value /m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t Gross Area (m²) 199.06 Kappa (kJ/m²K) 9.00	Nett Area (m²) 165.65 Area (m²) 88.39
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Walls Description Ground Floor First Floor	Type  Cavity Wal  Cons  Plast Plast	2 Average or un  Gro  22.35  Precise calcul  166.16  Cons  Cavit cavity  truction  erboard on timb erboard on timb erboard on timb	lation  truction  y wall : plasterb y, any outside st	42.34 m 36.49 m	m²	74 64 m²K U- (W	.50 m <sup>2</sup> .86 m <sup>2</sup> Value /m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t 2.70 t 3.00 s 4.00 s 4.00 s 4.00 s 4.00 s	Nett Area (m²) 165.65 Area (m²) 88.39 189.76
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description External Walls Oescription Ground Floor	Type  Cavity Wal  Cons  Plast Plast	2 Average or un  Gro  22.35  Precise calcul  166.16  Cons  Cavit cavity  struction	lation  truction  y wall : plasterb y, any outside st	42.34 m 36.49 m	m²	74 64 m²K U- (W	.50 m <sup>2</sup> .86 m <sup>2</sup> Value /m <sup>2</sup> K)	Kappa (kJ/m²K)	2.38 t 2.70 t 2.70 t Gross Area (m²) 199.06 Kappa (kJ/m²K) 9.00	Nett Area (m²) 165.65 Area (m²) 88.39
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description  External Walls Description  Ground Floor First Floor	Type  Cavity Wal  Cons  Plast Plast	2 Average or un  Gro  22.35  Precise calcul  166.16  Cons  Cavit cavity  struction  erboard on timb erboard on timb erboard on timb ie block, plastert	lation  truction  y wall : plasterb y, any outside st	42.34 m 36.49 m	m²	74 64 m²K U- (W	.50 m² .86 m²	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 2.70 t 3.70 t 3.00 t 3.	Nett Area (m²) 165.65  Area (m²) 88.39 189.76 28.14
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Walls Description Ground Floor First Floor Ground Floor Block  10.0 External Roofs	Type  Cavity Wal  Cons  Plast Plast Dens	2 Average or un  Gro  22.35  Precise calcul  166.16  Cons  Cavit cavit  struction  erboard on timb erboard on	lation  truction  y wall : plasterb y, any outside st  per frame per frame poard on dabs  truction	42.34 m 36.49 m	m²	m²K U- (W	.50 m² .86 m²	Kappa (kJ/m²K) 60.00	2.38 t 2.70 t 2.70 t 2.70 t 2.70 t 3.00 s 4.00 s 4.00 s 5.00 s 75.00	Nett Area (m²) 165.65 Area (m²) 88.39 189.76

10.2 Internal Ceilings





Description		Со	nstruction								Kappa (kJ/m²K)	Area (m²)
Ground Floor		Pla	asterboard ceiling,	carpeted chipbo	ard floor						9.00	65.15
11.0 Heat Loss Flo	ors											
Description	T	ype	Cons	struction						alue m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor	G	round f	Floor - Solid Susp	ended concrete	floor, car	peted				16	75.00	74.50
11.2 Internal Flooi	rs											
Description		Co	nstruction								Карра	Area
											(kJ/m²K)	(m²)
First Floor		Pla	asterboard ceiling,	carpeted chipbo	ard floor						18.00	65.15
12.0 Opening Type			_						_		_	
Description	Data Sou	ırce I	Гуре	Glazing		Glazing Gap	Argon Filled	G-val		rame Type	Frame Factor	U Value (W/m²K
Half Glazed Doo	r Manufac r	ture F	Half Glazed Door	Double Low-E	Soft 0.05			0.63			0.70	1.50
Patio Door	Manufac	ture \	Window	Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Window	r Manufac	ture \	Window	Double Low-E	Soft 0.05			0.63	3		0.70	1.30
	r											
13.0 Openings Name	Opening Type	Lo	cation	Orientation	Curtain	Overhang	Wide	Width	Hoight	Count	Area	Curtain
Name	Opening Type	LO	cation	Offentation	Type	Ratio	Overhang		(m)	Count	(m²)	Closed
Front Door	Half Glazed Doo	or [1]	External Wall	East							2.86	
Front Window	Window	[1]	External Wall	East	None	0.00					11.84	
LH Window	Window	[1]	External Wall	South	None	0.00					3.85	
Rear Window	Window	[1]	External Wall	West	None	0.00					7.65	
LH Patio Door	Window	[1]	External Wall	South	None	0.00					5.09	
RH Window	Window	[1]	External Wall	North	None	0.00					2.12	
14.0 Conservatory	,		None									
15.0 Draught Proo	fing		100				%					
16.0 Draught Lobb	у		No									
17.0 Thermal Brid	ging		Calculate Br	idges								
17.1 List of Bridge	s											
Source Type		idge Ty	•			Length	Psi	Imported				
Independently a			lintels (including o	ther steel lintels	)	22.91	0.050	No				
Independently a		Sill				19.29	0.034	No				
Independently a		Jamb				42.00	0.040	No				
Independently a			d floor (normal)			42.34	0.060	No				
Independently a			nediate floor within			32.87	0.000	No				
Independently a Table K1 - Defau			s (insulation at ceil s (insulation at ceil		od)	29.83	0.123	No No				
Independently a				_	euj	5.76	0.240	No No				
Table K1 - Defau		2 Gable 4 Flat r	e (insulation at cei	iiig ievei)		14.71 0.56	0.063	No No				
Independently a			ooा er (normal)			32.01	0.080	No				
Independently a			er (normal) er (inverted – intel	rnal area greater	than	14.37	-0.069	No				
mucpendently d		ternal a		mai area greater	uiaii	14.57	0.003	140				
Y-value			0.037				W/m²K					
18.0 Pressure Test	ing		Yes									
Designed AP₅o			5.00				m³/(h.m²	e) @ 50 Pa	ì			
Property Teste								. =				
							m3//L 1	N @ F				
As Built AP <sub>50</sub>			1				m³/(h.m²	) @ 50 Pa	i			







Summer Overheating	Ŋσ

Windows open in hot weather Windows fully open Cross ventilation possible Yes **Night Ventilation** No Air change rate

#### **Mechanical Ventilation**

Mechanical Ventilation System Present Approved Installation

Mechanical Ventilation data Type Туре

MV Reference Number

**Duct Type** 

8.00 Yes No Database Mechanical extract ventilation decentralised 500230 Flexible

#### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Coun
	Туре	
0.16	Through Wall	1
	Fan Kitchen	
0.16	Through Wall	2
	Fan Other Wet	
	Room	
0.18	In Room Fan	2
	Other Wet	
	Room	

#### 20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

#### 21.0 Fixed Cooling System

No

#### 22.0 Lighting

#### Internal

Total number of light fittings Total number of L.E.L. fittings Percentage of L.E.L. fittings

16 16 100.00

#### External

External lights fitted

No

### 23.0 Electricity Tariff

Database 24.0 Main Heating 1 100 Percentage of Heat % Database Ref. No. 18493 Fuel Type Mains gas Main Heating BGW SAP Code 104 89.9

Standard

In Winter In Summer

Controls

86.7 CBI Time and temperature zone control





25.0 Main Heating 2	None	
Combi keep hot type	None	
Combi boiler type	Standard Combi	
Flow Temperature	Normal (> 45°C)	
Heat Emitter	Radiators	
Is MHS Pumped	Pump in heated space	
Fan Assisted Flue	Yes	
Flue Type	Balanced	
Sap Code	2110	
Delayed Start Stat	Yes	
PCDF Controls	0	

29.0 Hot Water Cylinder	None	
SAP Code	901	
Water use <= 125 litres/person/day	Yes	
Solar Panel	No	
Waste Water Heat Recovery Storage System	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Flue Gas Heat Recovery System	No	
Water Heating	Main Heating 1	
28.0 Water Heating	HWP From main heating 1	
Community Heating	None	

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

Typical Cost Typical Savings Ratings after improvement per year SAP rating Environmental Impact \$13,500 - £5,500 £303 A 92





Property Reference	007780 - HT	- Seaton - Se	emi			ISS	ued on Da <sup>.</sup>	te 05/1	2/2019
Assessment	As Designed				Prop Type		780-SAP-Se		,
Reference	7 10 2 30 18 1 10 1								
Property	Plot, Moorth	orpe Way , (	Owlthorpe						
SAP Rating			85 B	DER	15	.52	TER		16.29
Environmental			86 B	% DER <ter< td=""><td></td><td></td><td>4.71</td><td></td><td></td></ter<>			4.71		
CO <sub>2</sub> Emissions (t/year	r)		1.65	DFEE	48	.45	TFEE		52.30
General Requirement	ts Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td>7.35</td><td></td><td></td></tfe<>	E		7.35		
	Иr. George Lead eorge.leadley@	-	-	01904 656271,			Assessor I	D P71	9-0001
	vant Homes Ce		J.COIII						
SUMMARY FOR INPUT			Designed)						
Orientation		East			1				
Property Tenure		Unknown			_   				
Transaction Type		New dwelling	<u> </u>		i				
Terrain Type		Suburban	,		j				
1.0 Property Type		House, Semi-	-Detached		1				
2.0 Number of Storeys		3	201001100		1				
3.0 Date Built		2018			1				
4.0 Sheltered Sides		2			<u> </u>				
5.0 Sunlight/Shade		Average or u	nknown						
5.0 Sunlight/Shade 6.0 Measurements		Average or u		Heat Loss Perime 20.59 m 17.44 m 17.44 m	ter Inte	ernal Floor 40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup>		verage Stor 2.38 I 2.70 I 2.70 I	m m
5.0 Sunlight/Shade 6.0 Measurements		Average or u	ound Floor: 1st Storey:	20.59 m 17.44 m	ter Inte	40.83 m <sup>2</sup> 37.97 m <sup>2</sup>		2.38 i 2.70 i	m m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area		Average or u	ound Floor: 1st Storey: 2nd Storey:	20.59 m 17.44 m		40.83 m <sup>2</sup> 37.97 m <sup>2</sup>		2.38 i 2.70 i	m m
5.0 Sunlight/Shade 6.0 Measurements		Average or u	ound Floor: 1st Storey: 2nd Storey:	20.59 m 17.44 m		40.83 m <sup>2</sup> 37.97 m <sup>2</sup>		2.38 i 2.70 i	n n
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area  8.0 Thermal Mass Param  Thermal Mass		Gro	ound Floor: 1st Storey: 2nd Storey:	20.59 m 17.44 m	] m²	40.83 m <sup>2</sup> 37.97 m <sup>2</sup>		2.38 i 2.70 i	m m
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Param		Ground 13.60  Precise calculation 191.68	ound Floor: 1st Storey: 2nd Storey:	20.59 m 17.44 m	] m²	40.83 m <sup>2</sup> 37.97 m <sup>2</sup>		2.38 i 2.70 i	m m
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area 8.0 Thermal Mass Param Thermal Mass	eter	Greate Calcu 191.68	ound Floor: 1st Storey: 2nd Storey: lation truction	20.59 m 17.44 m 17.44 m	m² kJ/m²K	40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup>	Карра	2.38 I 2.70 I 2.70 I	m m n
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description	Type	Average or u  Gro  13.60  Precise calcu  191.68  Cons  Cavit cavit Cavit	ound Floor: 1st Storey: 2nd Storey: lation truction  y wall: plasterbo y, any outside stri	20.59 m 17.44 m 17.44 m ard on dabs, AAC b ucture ard on dabs, AAC b	m² kJ/m²K	40.83 m² 37.97 m² 37.97 m² U-Value (W/m²K)	Kappa (kJ/m²K)	2.38 I 2.70 I 2.70 I	m m M
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description External Wall (GF) External Wall (1F+)	Type Cavity Wall	Average or u  Gro  13.60  Precise calcu  191.68  Cons  Cavit cavit Cavit	ound Floor: 1st Storey: 2nd Storey: lation  truction  y wall: plasterbo y, any outside stricy wall: plasterbo	20.59 m 17.44 m 17.44 m ard on dabs, AAC b ucture ard on dabs, AAC b	m² kJ/m²K	40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.38 I 2.70 I 2.70 I	Nett Are. (m²) 32.66
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description External Wall (GF) External Wall (1F+)	Type Cavity Wall	Average or u  Gro  13.60  Precise calcu  191.68  Cons  Cavit cavit cavit	ound Floor: 1st Storey: 2nd Storey: lation  truction  y wall: plasterbo y, any outside stricy wall: plasterbo	20.59 m 17.44 m 17.44 m ard on dabs, AAC b ucture ard on dabs, AAC b	m² kJ/m²K	40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24	Kappa (kJ/m²K) 60.00	2.38 I 2.70 I 2.70 I	Nett Are. (m²) 32.66
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description External Wall (GF) External Wall (1F+) 9.1 Party Walls	Type  Cavity Wall  Cavity Wall	Average or u  Gro  13.60  Precise calcu  191.68  Cons  Cavit cavit cavit cavit cavit cavit single	ound Floor: 1st Storey: 2nd Storey: lation  truction  y wall: plasterbo y, any outside stri y wall: plasterbo y, any outside stri truction	ard on dabs, AAC bucture ard on dabs, AAC bucture	m² kJ/m²K lock, filled	40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00	2.38 i 2.70 i 2.70 i 48.22 94.19	Nett Are. (m²) 32.66 75.62
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description External Wall (GF) External Wall (1F+) 9.1 Party Walls Description Party Wall	Type Cavity Wall Cavity Wall Type Filled Cavity Edge Sealin	Average or u  Gro  13.60  Precise calcu  191.68  Cons  Cavit cavit cavit cavit cavit cavit single	ound Floor: 1st Storey: 2nd Storey: lation  truction  y wall: plasterbo y, any outside stri y wall: plasterbo y, any outside stri truction	ard on dabs, AAC bucture ard on dabs, AAC bucture	m² kJ/m²K lock, filled	40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 48.22 94.19	Nett Are (m²) 32.66 75.62
5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description External Wall (GF) External Wall (1F+) 9.1 Party Walls Description Party Wall	Type Cavity Wall Cavity Wall Type Filled Cavity Edge Sealin	Average or u  Green 13.60  Precise calcu  191.68  Cons  Cavit Cavit Cavit Cavit Cavit Cavit Single g  With Single g	ound Floor: 1st Storey: 2nd Storey: lation  truction  y wall : plasterbo y, any outside stri y wall : plasterbo y, any outside stri truction e plasterboard or ss, cavity or cavity	ard on dabs, AAC bucture ard on dabs, AAC bucture	m² kJ/m²K lock, filled	40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 48.22 94.19 Kappa (kJ/m²K) 110.00	Nett Area (m²) 32.66 75.62 Area (m²) 65.33
5.0 Sunlight/Shade 6.0 Measurements  7.0 Living Area 8.0 Thermal Mass Param Thermal Mass 9.0 External Walls Description External Wall (GF) External Wall (1F+)  9.1 Party Walls Description Party Wall  9.2 Internal Walls Description	Type Cavity Wall Cavity Wall Type Filled Cavity Edge Sealin Const	Average or u  Gro  13.60  Precise calcu  191.68  Cons  Cavit	ound Floor: 1st Storey: 2nd Storey: lation  truction  y wall: plasterbo y, any outside strry wall: plasterbo y, any outside strry truction e plasterboard or ss, cavity or cavity over frame over frame	ard on dabs, AAC bucture ard on dabs, AAC bucture	m² kJ/m²K lock, filled	40.83 m <sup>2</sup> 37.97 m <sup>2</sup> 37.97 m <sup>2</sup> U-Value (W/m <sup>2</sup> K) 0.24 0.24	Kappa (kJ/m²K) 60.00 60.00 U-Value (W/m²K)	2.38 i 2.70 i 2.70 i 2.70 i 48.22 94.19 Kappa (kJ/m²K) 110.00	Nett Area (m²) 65.33  Area (m²)



10.0 External Roofs



Cold Roof Flat Roof  10.2 Internal Ceilings Description  Ground Floor First Floor  11.0 Heat Loss Floors Description  Ground Floor  11.2 Internal Floors Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door Patio Door	Exteri	Construction  Plasterboard ceili Plasterboard ceili	ing, ca	arpeted chipbo	ed flat roof	_		0.11 0.14	9.0		39.27 1.56 Kappa (kJ/m²K)	39.27 1.56 Area (m²)
10.2 Internal Ceilings Description  Ground Floor First Floor  11.0 Heat Loss Floors Description  Ground Floor  11.2 Internal Floors Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door	Туре	Construction  Plasterboard ceili  Plasterboard ceili  C	ing, ca	arpeted chipbo arpeted chipbo	pard floor			0.14	9.0	00	Карра	Area
Description  Ground Floor First Floor  11.0 Heat Loss Floors Description  Ground Floor  11.2 Internal Floors Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door	Туре	Plasterboard ceili Plasterboard ceili C	ing, ca	arpeted chipbo								
First Floor  11.0 Heat Loss Floors Description  Ground Floor  11.2 Internal Floors Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door	Туре	Plasterboard ceili	ing, ca	arpeted chipbo								(1111)
11.0 Heat Loss Floors Description  Ground Floor  11.2 Internal Floors Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door	Туре	С			oard floor						9.00	37.97
Description Ground Floor  11.2 Internal Floors Description First Floor Second Floor  12.0 Opening Types Description Half Glazed Door	Туре		Constru								9.00	37.97
Ground Floor  11.2 Internal Floors Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door			Constru									
11.2 Internal Floors Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door	Grour	nd Floor - Solid S		uction					U-Va (W/r		Kappa (kJ/m²K)	Area (m²)
Description  First Floor Second Floor  12.0 Opening Types Description  Half Glazed Door			uspen	ded concrete	floor, carpe	eted			0.3	16	75.00	40.83
Second Floor  12.0 Opening Types Description  Half Glazed Door		Construction									Kappa (kJ/m²K)	Area (m²)
12.0 Opening Types Description Half Glazed Door		Plasterboard ceili	ing, ca	rpeted chipbo	oard floor						18.00	37.97
<b>Description</b> Half Glazed Door		Plasterboard ceili	ing, ca	rpeted chipbo	oard floor						18.00	37.97
Half Glazed Door	Data Source	Туре		Glazing		Glazing	Argon	G-valu	ıo Fi	rame	Frame	U Value
		.,,,,		Oluziii B		Gap	Filled	O valu		уре	Factor	(W/m²K
Patio Door	Manufacture r	e Half Glazed Doo	or	Double Low-E	Soft 0.05			0.63			0.70	1.50
	Manufacture r	e Window		Double Low-E	Soft 0.05			0.63			0.70	1.50
Window	Manufacture r	e Window		Double Low-E	Soft 0.05			0.63			0.70	1.30
13.0 Openings												
	ening Type	Location	(05)	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Coun	(m²)	Curtain Closed
	If Glazed Door indow	[1] External Wall		East	None	0.00					2.86	
		[2] External Wall	` '	East South	None None	0.00					3.24 6.12	
		[1] External Wall		West	None	0.00					0.69	
		[1] External Wall		South	None	0.00					6.10	
Front Window Wi	indow	[2] External Wall		East	None	0.00					8.78	
RH Window Wi	indow	[1] External Wall	(GF)	North	None	0.00					2.67	
RH Window Wi	indow	[2] External Wall	(1F+)	North	None	0.00					3.67	
14.0 Conservatory		None										
15.0 Draught Proofing	g	100					%					
16.0 Draught Lobby		No										
17.0 Thermal Bridging		Calculate	Bride	202								



17.1 List of Bridges



Source Type	Bridge Type	Length	Psi	Imported
Independently assessed	E2 Other lintels (including other steel lintels)	14.06	0.053	No
Independently assessed	E2 Other lintels (including other steel lintels)	9.08	0.048	No
Independently assessed	E3 Sill	14.06	0.034	No
Independently assessed	E3 Sill	5.01	0.034	No
Independently assessed	E4 Jamb	28.50	0.040	No
Independently assessed	E4 Jamb	16.20	0.040	No
Independently assessed	E5 Ground floor (normal)	20.59	0.067	No
Independently assessed	E6 Intermediate floor within a dwelling	34.88	0.000	No
Independently assessed	E10 Eaves (insulation at ceiling level)	8.39	0.123	No
Independently assessed	E10 Eaves (insulation at ceiling level)	2.43	0.125	No
Table K1 - Default	E24 Eaves (insulation at ceiling level - inverted)	3.62	0.240	No
Independently assessed	E12 Gable (insulation at ceiling level)	9.05	0.063	No
Independently assessed	E12 Gable (insulation at ceiling level)	0.79	0.073	No
Independently assessed	E16 Corner (normal)	10.80	0.058	No
Independently assessed	E16 Corner (normal)	10.47	0.063	No
Independently assessed	E17 Corner (inverted – internal area greater than external area)	8.40	-0.068	No
Table K1 - Default	E18 Party wall between dwellings	15.57	0.120	No
Table K1 - Default	P1 Party wall - Ground floor	8.39	0.160	No
Table K1 - Default	P2 Party wall - Intermediate floor within a dwelling	16.78	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	8.39	0.240	No
Y-value	0.061		W/m²K	
18.0 Pressure Testing	Yes			
Designed AP₅o	5.00		m³/(h.r	n²) @ 50 Pa
Property Tested?				
As Built AP <sub>50</sub>			m³/(h.r	n²) @ 50 Pa

#### 19.0 Mechanical Ventilation

#### **Summer Overheating**

Windows open in hot weather

Cross ventilation possible

Night Ventilation

Air change rate

Windows fully open

Yes

No

8.00

Flexible

#### **Mechanical Ventilation**

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

Туре

MV Reference Number Duct Type Yes

No

Database

Mechanical extract ventilation - decentralised

500230

#### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Count
	Туре	
0.16	Through Wall	1
	Fan Kitchen	
0.16	Through Wall	3
	Fan Other Wet	
	Room	
0.18	In Room Fan	1
	Other Wet	
	Room	





20.0 Fans, Open Fireplaces, Flues				
Number of Chinese are	MHS	SHS	Other	Total
Number of Chimneys Number of open flues	0 0		0	0
Number of intermittent fans	Ü		O	0
Number of passive vents				0
Number of flueless gas fires				0
21.0 Fixed Cooling System	No			
22.0 Lighting				
Internal				
Total number of light fittings	14			
Total number of L.E.L. fittings	14			
Percentage of L.E.L. fittings	100.00			%
External				
External lights fitted	No			
23.0 Electricity Tariff	Standard			
24.0 Main Heating 1	Database			
Percentage of Heat	100			
Database Ref. No.	18493			7
Fuel Type	Mains gas			<u> </u>
Main Heating	BGW			<u> </u>
SAP Code	104			
In Winter	89.9			=
In Summer	86.7			
Controls	CBI Time and te	emperature zoi	ne control	=
PCDF Controls	0			
Delayed Start Stat	Yes			
Sap Code	2110			=
Flue Type	Balanced			
Fan Assisted Flue	Yes			
Is MHS Pumped	Pump in heated	d snace		
Heat Emitter	Radiators			
Flow Temperature	Normal (> 45°C	)		
Combi boiler type	Standard Comb	•		=
Combi keep hot type	None	··		
25.0 Main Heating 2	None			7
23.0 Iviaili ficating 2	INOTIE			_l
				_
Community Heating	None			
28.0 Water Heating	HWP From main	n heating 1		
Water Heating	Main Heating 1			
Flue Gas Heat Recovery System	No			
Waste Water Heat Recovery Instantaneous System 1	No			
Waste Water Heat Recovery	No			
Instantaneous System 2				_



Waste Water Heat Recovery

No



9.0 Hot Water Cylinder	None	
SAP Code	901	
Water use <= 125 litres/person/day	Yes	
Solar Panel	No	
Storage System		

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Tomical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar water heating	£4,000 - £6,000	£30	B 86	
	Tunical Cost	Typical savings	Ratings a	fter improvement
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>
Solar photovoltaic panels, 2.5 kWp	£3.500 - £5.500	£303	A 94	





Duo no mb a Dof	007700 117	· CII	Dat						
Property Reference			y - Det				ssued on Da		12/2019
Assessment	As Designed	- As			Prop Typ	e Ref 0	07780-SAP-Su	dbury-D_DS	
Reference Property	Plot . Moort	horpe Wa	ay , Owlthorpe						
			84 B	DER	1	17.70	TER		18.30
SAP Rating			83 B			17.70	3.30		16.50
Environmental	- ···\			% DER <ter< td=""><td></td><td>0.45</td><td>TFEE</td><td></td><td>CC 10</td></ter<>		0.45	TFEE		CC 10
Constraint Remains			2.29	DFEE .TE		9.45			66.19
General Requirement	nts Compliance		Pass	% DFEE <tfe< td=""><td>E</td><td></td><td>10.19</td><td></td><td></td></tfe<>	E		10.19		
	Mr. George Lea george.leadley@		rge Leadley, Tel: oup.com	01904 656271,			Assessor I	D P71	9-0001
Client	Avant Homes Co	entral							
SUMMARY FOR INPL	JT DATA FOR: N	ew Build (	(As Designed)						
Orientation		East							
Property Tenure		Unknowr	n						
Transaction Type		New dwe	elling						
Terrain Type		Suburbar	n						
1.0 Property Type		House, D	etached						
2.0 Number of Storeys		2							
		2018							
3.0 Date Built									
3.0 Date Built 4.0 Sheltered Sides		2							
		-	or unknown						
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements		Average		<b>Heat Loss Perim</b> 41.67 m 34.69 m		<b>ternal Flo</b> 69.52 70.45	m²	2.72 2.36	m
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area		Average (	Ground Floor: 1st Storey:	41.67 m	eter In	69.52	m²	2.72	m
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter	Average (44.00 Precise ca	Ground Floor:	41.67 m	m²	69.52	m²	2.72	m
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area	meter	Average (	Ground Floor: 1st Storey:	41.67 m		69.52	m²	2.72	m
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para	meter Type	44.00  Precise Co 148.33	Ground Floor: 1st Storey:	41.67 m	m²	69.52 70.45 U-Vali	m <sup>2</sup> m <sup>2</sup> ue Kappa	2.72 2.36	m m
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls		44.00  Precise ca 148.33	Ground Floor: 1st Storey: alculation	41.67 m 34.69 m	m² kJ/m²K	69.52 70.45	m² m² ue Kappa ²K) (kJ/m²K)	2.72	m
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description	Туре	44.00 Precise ca 148.33	Ground Floor: 1st Storey: alculation  Construction	41.67 m 34.69 m	m² kJ/m²K	69.52 70.45 U-Valu (W/m²	m² m² we Kappa ki (kJ/m²k) 60.00	2.72 2.36 Gross Area (m²)	M M Nett Are (m²)
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls	<b>Type</b> Cavity Wal  Solid Wall	44.00  Precise co  148.33	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall: plasterbocavity, any outside st Solid wall: plasterbook	41.67 m 34.69 m	m² kJ/m²K	0.24	m² m² we Kappa ki (kJ/m²k) 60.00	2.72 2.36 Gross Area (m²) 169.19 24.92	Nett Are (m²) 140.39 22.95
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description	Type  Cavity Wall  Solid Wall	Average (44.00  Precise colored (48.33)	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall: plasterbocavity, any outside st Solid wall: plasterbocoutside structure	41.67 m 34.69 m	m² kJ/m²K	0.24	m² m² we Kappa ki (kJ/m²k) 60.00	2.72 2.36 Gross Area (m²) 169.19 24.92 Kappa (kJ/m²K)	Nett Are (m²) 140.39 22.95
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description Ground Floor	Type  Cavity Wall  Solid Wall  Cons	Average (44.00  Precise colored (48.33)	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall: plasterbo cavity, any outside st Solid wall: plasterbo outside structure  timber frame	41.67 m 34.69 m	m² kJ/m²K	0.24	m² m² we Kappa ki (kJ/m²k) 60.00	2.72 2.36 Gross Area (m²) 169.19 24.92 Kappa (kJ/m²K) 9.00	Nett Are (m²) 140.39 22.95  Area (m²) 107.28
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description	Type  Cavity Wall  Solid Wall  Cons	Average (44.00  Precise colored (148.33)	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall: plasterbocavity, any outside st Solid wall: plasterbocoutside structure	41.67 m 34.69 m	m² kJ/m²K	0.24	m² m² we Kappa ki (kJ/m²k) 60.00	2.72 2.36 Gross Area (m²) 169.19 24.92 Kappa (kJ/m²K)	Nett Are (m²) 140.39 22.95
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block	Type  Cavity Wall  Solid Wall  Cons	Average (44.00  Precise colored (148.33)	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall : plasterbook cavity, any outside st Solid wall : plasterbook outside structure  timber frame timber frame	41.67 m 34.69 m	m² kJ/m²K	0.24	m² m² we Kappa ki (kJ/m²k) 60.00	2.72 2.36 Gross Area (m²) 169.19 24.92 Kappa (kJ/m²K) 9.00 9.00	Nett Are (m²) 140.39 22.95  Area (m²) 107.28 182.29
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description Ground Floor First Floor	Type  Cavity Wall  Solid Wall  Cons	Average of 44.00  Precise color of the color	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall : plasterbook cavity, any outside st Solid wall : plasterbook outside structure  timber frame timber frame	41.67 m 34.69 m	m² kJ/m²K	0.24	m² m² ue Kappa l'K) (kJ/m²K) l 60.00 l 9.00	2.72 2.36 Gross Area (m²) 169.19 24.92 Kappa (kJ/m²K) 9.00 9.00	Nett Are (m²) 140.39 22.95  Area (m²) 107.28 182.29 17.08
4.0 Sheltered Sides 5.0 Sunlight/Shade 6.0 Measurements 7.0 Living Area 8.0 Thermal Mass Para Thermal Mass 9.0 External Walls Description External Wall Solid Garage Wall 9.2 Internal Walls Description Ground Floor First Floor Ground Floor Block 10.0 External Roofs	Type  Cavity Wall  Solid Wall  Cons  Plast Plast Dens	Average of 44.00  Precise color 148.33	Ground Floor: 1st Storey:  alculation  Construction  Cavity wall : plasterbocavity, any outside st Solid wall : plasterbocoutside structure  timber frame timber frame isterboard on dabs	oard on dabs, AAC ructure ard on dabs, insulat	m² kJ/m²K	U-Valu (W/m² 0.24 0.32	m² m² we Kappa k'K) (kJ/m²K) 60.00 9.00	2.72 2.36 Gross Area (m²) 169.19 24.92 Kappa (kJ/m²K) 9.00 9.00 75.00	Nett Are (m²) 140.39 22.95  Area (m²) 107.28 182.29 17.08

10.2 Internal Ceilings





Description		Construction								Kappa (kJ/m²K)	Area (m²)
Ground Floor		Plasterboard ceiling,	poard ceiling, carpeted chipboard floor							9.00	51.63
11.0 Heat Loss Flo	ors										
Description	Туре	Cons	truction					U-Va (W/n		Kappa (kJ/m²K)	Area (m²)
Ground Floor	Grou	nd Floor - Solid Susp	ended concrete	floor, carp	eted			0.1	.6	75.00	69.52
Exposed Floor A	bove Garage Expos Timbe		er exposed floo	r, insulatio	n between jo	oists		0.1	.5	20.00	18.82
11.2 Internal Floor Description	rs	Construction								Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling,	carpeted chipbo	oard floor						18.00	51.63
12.0 Opening Type	es										
Description	Data Source	Туре	Glazing		Glazing Gap	Argon Filled	G-val		ame ype	Frame Factor	U Value (W/m²K)
Half Glazed Doo	r Manufacture r	Half Glazed Door	Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Patio Door	Manufacture r	e Window	Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Window	Manufacture r	e Window	Double Low-E	Soft 0.05			0.63	3		0.70	1.30
Garage Door		e Door to Corridor									1.50
13.0 Openings											
Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Coun	t Area (m²)	Curtain Closed
Front Door	Half Glazed Door	[1] External Wall	East							2.86	
Front Window	Window	[1] External Wall	East	None	0.00					7.65	
LH Window	Window	[1] External Wall	South	None	0.00					0.72	
Rear Window	Window	[1] External Wall	West	None	0.00					3.67	
Rear Patio Door		[1] External Wall	West	None	0.00					12.46	
Front Garage Door	Door to Corridor	[2] Solid Garage Wall	l East							1.97	
RH Window	Window	[1] External Wall	North	None	0.00					1.44	
14.0 Conservatory	,	None									
15.0 Draught Prod	fing	100				%					
16.0 Draught Lobb	у	No									
17.0 Thermal Brid	ging	Calculate Bri	idges								
15.0 Draught Prod 16.0 Draught Lobb	ofing	100 No	idges			%					



17.1 List of Bridges



Source Type	Bridge Type	Length	Psi	Imported	
Table K1 - Approved	E1 Steel lintel with perforated steel base plate	0.94	0.500	No	
Independently assessed	E2 Other lintels (including other steel lintels)	17.45	0.050	No	
Independently assessed	E3 Sill	10.44	0.034	No	
Independently assessed	E4 Jamb	35.40	0.040	No	
Table K1 - Approved	E4 Jamb	4.20	0.050	No	
Independently assessed	E5 Ground floor (normal)	32.52	0.060	No	
Table K1 - Approved	E5 Ground floor (normal)	9.15	0.160	No	
Table K1 - Default	E20 Exposed floor (normal)	9.15	0.320	No	
Table K1 - Default	E21 Exposed floor (inverted)	9.15	0.320	No	
Independently assessed	E6 Intermediate floor within a dwelling	25.54	0.000	No	
Independently assessed	E10 Eaves (insulation at ceiling level)	18.36	0.123	No	
Table K1 - Default	E24 Eaves (insulation at ceiling level - inverted)	5.13	0.240	No	
Independently assessed	E12 Gable (insulation at ceiling level)	19.48	0.063	No	
Table K1 - Default	E14 Flat roof	12.11	0.080	No	
Independently assessed	E16 Corner (normal)	25.24	0.058	No	
Table K1 - Approved	E16 Corner (normal)	5.44	0.090	No	
Independently assessed	E17 Corner (inverted – internal area greater than external area)	7.62	-0.069	No	
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	2.72	-0.090	No	
Y-value	0.052		W/m²K		
18.0 Pressure Testing	Yes				
Designed AP₅o	5.00	·	m³/(h.r	n²) @ 50 Pa	
Property Tested?					
As Built AP <sub>50</sub>			m³/(h.r	n²) @ 50 Pa	
19.0 Mechanical Ventilation	1				

#### **Summer Overheating**

Windows fully open Windows open in hot weather Cross ventilation possible Yes Night Ventilation Air change rate

#### **Mechanical Ventilation**

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

Туре

MV Reference Number

Duct Type

10
3.00
'es
lo
Database

Mechanical extract ventilation decentralised

500230 Flexible

#### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Count
	Туре	
0.16	Through Wall	1
	Fan Kitchen	
0.16	Through Wall	2
	Fan Other We	t
	Room	
0.18	In Room Fan	2
	Other Wet	
	Room	

20.0 Fans, Open Fireplaces, Flues





	MHS	SHS	Other	Total
Number of Chimneys	0	3П3	0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0
21.0 Fixed Cooling System	No			
22.0 Lighting				
Internal				
Total number of light fittings	14			
Total number of L.E.L. fittings	14			
Percentage of L.E.L. fittings	100.00			%
External				
External lights fitted	No			
23.0 Electricity Tariff	Standard			
24.0 Main Heating 1	Database			
Percentage of Heat	100			%
Database Ref. No.	18204			
Fuel Type	Mains gas			7
Main Heating	BGW			1
SAP Code	104			1
In Winter	89.9			1
In Summer	86.7			Ī
Controls	CBI Time and to	emperature zo	ne control	Ī
PCDF Controls	0	·		Ī
Delayed Start Stat	Yes			<u> </u>
Sap Code	2110			1
Flue Type	Balanced			Ī
Fan Assisted Flue	Yes			<u> </u>
Is MHS Pumped	Pump in heated	d space		<u> </u>
Heat Emitter	Radiators	<u> </u>		<u> </u>
Flow Temperature	Normal (> 45°C	<u> </u>		1
Combi boiler type	Standard Comb	oi		Ī
Combi keep hot type	None			]
25.0 Main Heating 2	None			]
25.0 Main Heating 2	None			
Community Heating	None			]
28.0 Water Heating	HWP From mai	n heating 1		
Water Heating	Main Heating 1			
Flue Gas Heat Recovery System	No			
Waste Water Heat Recovery Instantaneous System 1	No			
Waste Water Heat Recovery Instantaneous System 2	No			



Waste Water Heat Recovery

Storage System

No



Solar Panel	No
Water use <= 125 litres/person/day	Yes
SAP Code	901
9.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

Solar photovoltaic panels, 2.5 kWp

Typical Cost Typical savings Per year SAP rating Environmental Impact £3,500 - £5,500 £303 B 91





<b>Property Reference</b>	007780 - HT	- Weydale -	Mid			Iss	ued on Da	te 05/1	12/2019
Assessment	As Designed	d - As/Opp			Prop Type	Ref 007	780-SAP-W	eydale-M_D	S
Reference									
Property	Plot , Moort	thorpe Way ,	Owlthorpe						
SAP Rating			85 B	DER	15	5.66	TER		16.31
Environmental			87 B	% DER <ter< td=""><td></td><td></td><td>4.00</td><td></td><td></td></ter<>			4.00		
CO₂ Emissions (t/yea	ır)		1.36	DFEE	43	.07	TFEE		45.80
General Requiremen	ts Compliance		Pass	% DFEE <tfee< td=""><td></td><td></td><td>5.96</td><td></td><td></td></tfee<>			5.96		
	Mr. George Lea george.leadley(			01904 656271,			Assessor I	D P71	9-0001
	Avant Homes C		1						
SUMMARY FOR INPU	T DATA FOR: N	ew Build (As	Designed)						
Orientation		East			]				
Property Tenure		Unknown			]				
Transaction Type		New dwellin	ng		]				
Terrain Type		Suburban			]				
1.0 Property Type		House, Mid-	Terrace		]				
2.0 Number of Storeys		2			]				
3.0 Date Built		2019			]				
4.0 Sheltered Sides		3			]				
5.0 Sunlight/Shade		Average or u	unknown		]				
6.0 Measurements									
		_		Heat Loss Perimet	er Inte	ernal Floo		verage Stor	
		G	round Floor:	12.20 m	er Into	49.13 m	2	2.38 ו	m
					1		2	•	m
7.0 Living Area		<b>G</b>	round Floor:	12.20 m	er Into	49.13 m	2	2.38 ו	m
7.0 Living Area 8.0 Thermal Mass Paran	neter		round Floor: 1st Storey:	12.20 m	1	49.13 m	2	2.38 ו	m
	neter	42.80	round Floor: 1st Storey:	12.20 m	1	49.13 m	2	2.38 ו	m
8.0 Thermal Mass Paran	neter	42.80 Precise calcu	round Floor: 1st Storey:	12.20 m	] m²	49.13 m	2	2.38 ו	m
8.0 Thermal Mass Paran Thermal Mass	neter Type	42.80  Precise calcu 193.6	round Floor: 1st Storey:	12.20 m	] m²	49.13 m 49.13 m	2 2 Kappa	2.38 I 2.64 I	m m
8.0 Thermal Mass Paran Thermal Mass 9.0 External Walls		42.80 Precise calcu 193.6  Con	1st Storey:  ulation  struction	12.20 m 12.20 m	m²	49.13 m 49.13 m	2 2 Kappa	2.38 i 2.64 i	m m
8.0 Thermal Mass Paran Thermal Mass 9.0 External Walls Description	Туре	42.80 Precise calcu 193.6  Con	struction  round Floor:  1st Storey:  ulation  struction	12.20 m 12.20 m	m²	49.13 m 49.13 m U-Value (W/m²K)	Kappa	2.38 I 2.64 I	M m Nett Area (m²)
8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall	Туре	42.80  Precise calcu 193.6  Con  Cavi	struction  round Floor:  1st Storey:  ulation  struction	12.20 m 12.20 m	m²	49.13 m 49.13 m U-Value (W/m²K)	Kappa (kJ/m²K) 60.00	2.38 t 2.64 t Gross Area (m²) 61.26	Nett Area (m²) 44.22
8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls	<b>Type</b> Cavity Wal	42.80  Precise calculates and the control of the care care care care care care care car	struction  ity wall : plasterboty, any outside struction	12.20 m 12.20 m ard on dabs, AAC blocucture	m²  kJ/m²K	49.13 m 49.13 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00	2.38 i 2.64 i Gross Area (m²) 61.26	Nett Area (m²) 44.22
8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls	Type  Cavity Wal  Type  Filled Cavi Edge Seali	42.80  Precise calculates and the control of the cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces.	struction  ity wall : plasterboty, any outside struction  struction	12.20 m 12.20 m ard on dabs, AAC blocucture	m²  kJ/m²K	49.13 m 49.13 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 I 2.64 I Gross Area (m²) 61.26 Kappa (kJ/m²K) 110.00	Nett Area (m²) 44.22  Area (m²) 80.88
8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall	Type  Cavity Wal  Type  Filled Cavi Edge Seali	42.80  Precise calculates and the control of the care care care care care care care car	struction  ity wall : plasterboty, any outside struction  struction	12.20 m 12.20 m ard on dabs, AAC blocucture	m²  kJ/m²K	49.13 m 49.13 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 I 2.64 I Gross Area (m²) 61.26	Nett Area (m²) 44.22
8.0 Thermal Mass Paran Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls	Type  Cavity Wal  Type  Filled Cavity Edge Seality  Constitution of the property of the proper	42.80  Precise calculates and the control of the cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces. The cavity with sing ploces are calculated as a cavity with sing ploces.	struction  ity wall: plasterboty, any outside struction gle plasterboard or cavity struction gle plasterboard or cavity struction	12.20 m 12.20 m ard on dabs, AAC blocucture	m²  kJ/m²K	49.13 m 49.13 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 i 2.64 i 2.64 i Gross Area (m²) 61.26 Kappa (kJ/m²K) 110.00	Nett Area (m²) 44.22  Area (m²) 80.88
8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type  Cavity Wal  Type  Filled Cavity Edge Seality  Constitution of the property of the proper	42.80  Precise calculates and the control of the cavitation and the calculates are calculated as a capital cavitation and the calculates are calculated as a capital calculates are calculated as a capital calculates are calculated as a calculate calculate and calculates are calculated as a calculate calculate calculate calculated as a calculate calculated as a calculate calculated as a calculate calculate calculated as a calculate calculated as a calculate calculated as a calculated as	struction  ity wall: plasterboty, any outside struction gle plasterboard or cavity struction gle plasterboard or cavity struction	12.20 m 12.20 m ard on dabs, AAC blocucture	m²  kJ/m²K	49.13 m 49.13 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 i 2.64 i 2.64 i Gross Area (m²) 61.26 Kappa (kJ/m²K) 110.00	Nett Area (m²) 44.22  Area (m²) 80.88  Area (m²) 47.65
8.0 Thermal Mass Param Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor	Type  Cavity Wal  Type  Filled Cavity Edge Seality  Constitution of the property of the proper	42.80  Precise calculates and a context of the carboard on time terboard o	struction  ity wall: plasterboty, any outside struction gle plasterboard or cavity struction gle plasterboard or cavity struction	12.20 m 12.20 m ard on dabs, AAC blocucture	m²  kJ/m²K	49.13 m 49.13 m U-Value (W/m²K) 0.24	Kappa (kJ/m²K) 60.00  U-Value (W/m²K) 0.00	2.38 i 2.64 i 2.64 i Gross Area (m²) 61.26 Kappa (kJ/m²K) 110.00	Nett Area (m²) 44.22  Area (m²) 80.88  Area (m²) 47.65





10.2 Internal Ceilings Description	Const	ruction							Kappa (kJ/m²K)	Area (m²)
Ground Floor	Plaste	erboard ceiling,	carpeted chipbo	ard floor					9.00	49.13
11.0 Heat Loss Floors  Description	Туре	Cons	struction					U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Ground Floo	or - Solid Susp	ended concrete	floor, carp	eted			0.14	75.00	49.13
11.2 Internal Floors Description	Const	ruction							Kappa (kJ/m²K)	Area (m²)
First Floor	Plaste	rboard ceiling,	carpeted chipbo	ard floor					18.00	49.13
12.0 Opening Types Description	Data Source Type	e	Glazing		Glazing Gap	g Argon Filled	G-valu	e Frame Type	Frame Factor	U Value (W/m²K)
Solid Door	Manufacture Solid	d Door								1.50
Patio Door	Manufacture Win	dow	Double Low-E	Soft 0.05			0.63		0.70	1.50
Window	r Manufacture Win r	dow	Double Low-E	Soft 0.05			0.63		0.70	1.30
13.0 Openings Name Open		ion	Orientation	Curtain	Overhang	Wide	Width	Height Cour	nt Area	Curtain
	5 71		Offentation	Туре	Ratio	Overhang		(m)	(m²)	Closed
Front Door Solid		ternal Wall	East						2.18	
Front Windows Wind		ternal Wall	East	None	0.00				7.14	
Rear Windows Wind		ternal Wall	West	None	0.00				3.81	
Rear Patio Door Wind	OW [1] EX	ternal Wall	West	None	0.00				3.91	
14.0 Conservatory		None								
15.0 Draught Proofing		100				%				
16.0 Draught Lobby		No								
17.0 Thermal Bridging		Calculate Br	idges							
17.1 List of Bridges										
Source Type	Bridge Type				Length		Imported			
Independently assessed		els (including o	ther steel lintels	)	11.58	0.050	No			
Independently assessed					8.68	0.034	No			
Independently assesses		( )			23.40	0.040	No			
Independently assessed Independently assessed		ate floor withi	n o duvollina		12.20	0.060	No			
Independently assessed		isulation at cei			12.20 12.20	0.000 0.123	No No			
Table K1 - Default	•	ıll between dw			20.08	0.120	No			
Table K1 - Default		- Ground floo			16.11	0.160	No			
Table K1 - Default	P2 Party wall		e floor within a		16.11	0.000	No			
Table K1 - Default	dwelling P4 Party wall	- Roof (insulat	ion at ceiling lev	el)	16.11	0.240	No			
Y-value		0.081				W/m²K				
18.0 Pressure Testing		Yes								
Designed AP₅o		5.00				m <sup>3</sup> /(h.m <sup>2</sup> )	@ 50 Pa			
Property Tested ?						, , , , ,				
As Built AP <sub>50</sub>						m³/(h.m²)	@ 50 Pa			

19.0 Mechanical Ventilation

**Summer Overheating** 





Windov	vs open in hot weath	ner	Windows fu	ılly open			
Cross v	entilation possible		Yes				
Night V	entilation		No				
Air chai	nge rate		8.00				
Mechanica	l Ventilation						
Mechan	ical Ventilation System	Present	Yes				
Approv	ed Installation		No				
	nical Ventilation data	Туре	Database				
Туре			Mechanical decentralise	extract ventila	ition -		
MV/ Pof	erence Number		500230	eu			
Duct Ty			Flexible				
19.1 Mechanica SFP 0.16	al extract ventilation Fan/Room Type Through Wall Fan Kitchen	Count	ralised				
0.16	Through Wall Fan Other Wet Room	1					
0.18	In Room Fan C Other Wet Room	1					
20.0 Fans, Ope	n Fireplaces, Flues						
Number of Number of Number of Number of	Chimneys		<b>MHS</b> 0 0	SHS	Other 0 0	<b>Total</b> 0 0 0 0 0 0	
21.0 Fixed Coo	ling System	N	0			1	
	3 - 7						
22.0 Lighting							
Internal		4.4				7	
	umber of light fitting						
	umber of L.E.L. fitting						
	tage of L.E.L. fittings	10	00.00			%	
External		_				7	
Externa	l lights fitted	No	)				
23.0 Electricity	Tariff	Sta	andard				
24.0 Main Heat	ting 1	Da	atabase				
Percentage	of Heat	10	00			%	
Database R	ef. No.	18	3493				
Fuel Type		M	ains gas				
Main Heati	ng	ВС	SW .				
SAP Code		10	)4			Ī	
In Wint	er	89				Ī	
In Sumi		86				i	
Controls	nei	_		emperature zor	ne control	$\exists$	
PCDF Contr	ols	0	, mine and te	pc.atule 201	ic control	_	
LCDL COUR	UIS	Į U				1	





25.0 Main Heating 2	None
Combi keep hot type	None
Combi boiler type	Standard Combi
Flow Temperature	Normal (> 45°C)
Heat Emitter	Radiators
Is MHS Pumped	Pump in heated space
Fan Assisted Flue	Yes
Flue Type	Balanced
Sap Code	2110
Delayed Start Stat	Yes

29.0 Hot Water Cylinder	None
SAP Code	901
Water use <= 125 litres/person/day	Yes
Solar Panel	No
Waste Water Heat Recovery Storage System	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Instantaneous System 1	No
Flue Gas Heat Recovery System	No
Water Heating	Main Heating 1
28.0 Water Heating	HWP From main heating 1
Community Heating	None

#### Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings	Ratings after improvement		
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>	
Solar water heating	£4,000 - £6,000	£30	B 86		
	Typical Cost	Typical savings	Ratings after improvement		
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>	
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 95		





<b>Property Reference</b>	007780 - H1	Γ - Weydale -	Semi			Iss	ued on Da	te 05/1	12/2019
Assessment	As Designed	d - As			Prop Type	Ref 007	780-SAP-W	eydale-S_DS	;
Reference									
Property	Plot , Moor	thorpe Way ,	, Owlthorpe						
SAP Rating			84 B	DER	16	.54	TER		17.42
Environmental			86 B	% DER <ter< td=""><td></td><td></td><td>5.06</td><td></td><td></td></ter<>			5.06		
CO <sub>2</sub> Emissions (t/yea	ar)		1.46	DFEE	47.	41	TFEE		51.70
General Requiremen	nts Compliance		Pass	% DFEE <tfee< td=""><td></td><td></td><td>8.29</td><td></td><td></td></tfee<>			8.29		
Assessor Details	Mr. George Lea george.leadley(			)1904 656271,			Assessor I	D P71	.9-0001
Client	Avant Homes C								
SUMMARY FOR INPL	JT DATA FOR: N	ew Build (As	s Designed)						
Orientation		East							
Property Tenure		Unknown							
Transaction Type		New dwellin	 າg						
Terrain Type		Suburban							
1.0 Property Type		House, Sem	i-Detached						
2.0 Number of Storeys		2							
3.0 Date Built		2019							
4.0 Sheltered Sides		2							
5.0 Sunlight/Shade		Average or u	unknown						
6.0 Measurements									
				Heat Loss Perimet	er Inte	rnal Flooi		verage Stor	
		G	round Floor:	20.25 m	er Inte	49.13 m	2	2.38	m
7.0 Living Area							2	•	m
7.0 Living Area	motor	42.80	round Floor: 1st Storey:	20.25 m	er Inte	49.13 m	2	2.38	m
8.0 Thermal Mass Para	meter	42.80 Precise calcu	round Floor: 1st Storey:	20.25 m	m²	49.13 m	2	2.38	m
8.0 Thermal Mass Para Thermal Mass	meter	42.80	round Floor: 1st Storey:	20.25 m		49.13 m	2	2.38	m
8.0 Thermal Mass Para	meter Type	42.80  Precise calculation   172.42	round Floor: 1st Storey:	20.25 m	m²	49.13 m	2 2 Kappa	2.38	m
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls		42.80 Precise calcu 172.42 Con	1st Storey: ulation	20.25 m 20.25 m	m² kJ/m²K	49.13 m 49.13 m	2 2 Kappa	2.38 ( 2.64 )	m m
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls	Туре	Precise calculates and the control of the cavitation of the cavita	round Floor: 1st Storey:  ulation  istruction  ity wall : plasterbo ity, any outside str	20.25 m 20.25 m	m² kJ/m²K	49.13 m 49.13 m	Kappa	2.38 ( 2.64 )	M M M M M M M M M M M M M M M M M M M
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description  External Wall	Туре	Precise calculates and the control of the cavitation of the cavita	round Floor: 1st Storey:  ulation  istruction  ity wall : plasterbo	20.25 m 20.25 m	m² kJ/m²K	49.13 m 49.13 m	Kappa (kJ/m²K) 60.00	2.38 ( 2.64 )	Nett Area (m²) 83.67
8.0 Thermal Mass Para Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls	<b>Type</b> Cavity Wa	42.80  Precise calculates a constant of the care care care care care care care car	ulation  ity wall : plasterbo ity, any outside str	20.25 m 20.25 m ard on dabs, AAC bloucture	m² kJ/m²K	49.13 m 49.13 m	Kappa (kJ/m²K) 60.00	2.38 ( 2.64 )	Nett Area (m²) 83.67
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description	Type  Cavity Wa  Type  Filled Cavi Edge Seali	42.80  Precise calculates a constant of the care care care care care care care car	ulation  ity wall: plasterbo ity, any outside str  istruction  gle plasterboard or	20.25 m 20.25 m ard on dabs, AAC bloucture	m² kJ/m²K	49.13 m 49.13 m	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 (2.64 )  2.64 )  Gross Area (m²) 101.70  Kappa (kJ/m²K) 110.00	Nett Area (m²) 83.67  Area (m²) 40.44
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description External Wall  9.1 Party Walls Description Party Wall	Type  Cavity Wa  Type  Filled Cavi Edge Seali  Con	42.80  Precise calculates a constant of the co	ulation  istruction  ity wall: plasterbo ity, any outside struction gle plasterboard or cks, cavity or cavity	20.25 m 20.25 m ard on dabs, AAC bloucture	m² kJ/m²K	49.13 m 49.13 m	Kappa (kJ/m²K) 60.00 U-Value (W/m²K)	2.38 (2.64 )  Gross Area (m²) 101.70  Kappa (kJ/m²K) 110.00	Nett Area (m²) 83.67  Area (m²) 40.44
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor  10.0 External Roofs	Type  Cavity Wa  Type  Filled Cavi Edge Seali  Con  Plas Plas	42.80  Precise calculated and a calculat	ulation  istruction  ity wall: plasterbo ity, any outside struction gle plasterboard or cks, cavity or cavity  iber frame iber frame	20.25 m 20.25 m ard on dabs, AAC bloucture	m² kJ/m²K	49.13 m 49.13 m	Kappa (kJ/m²K) 60.00 U-Value (W/m²K) 0.00	2.38 (2.64 (m²) (m²) (101.70 Kappa (kJ/m²K) (kJ/m²K) 9.00 9.00	Nett Area (m²) 83.67  Area (m²) 40.44  Area (m²) 47.65 127.62
8.0 Thermal Mass Paral Thermal Mass  9.0 External Walls Description  External Wall  9.1 Party Walls Description  Party Wall  9.2 Internal Walls Description  Ground Floor First Floor	Type  Cavity Wa  Type  Filled Cavi Edge Seali  Con  Plas Plas	42.80   Precise calculated   172.42   Con   Cavidant   Con	ulation  istruction  ity wall: plasterbo ity, any outside struction gle plasterboard or cks, cavity or cavity	20.25 m 20.25 m ard on dabs, AAC bloucture dabs both sides, lig	m² kJ/m²K	49.13 m 49.13 m	Kappa (kJ/m²K) 60.00  U-Value (W/m²K) 0.00	2.38 (2.64 (	Nett Area (m²) 83.67  Area (m²) 40.44  Area (m²) 47.65





10.2 Internal Ceilir Description	ngs		Constr	uction									Kappa (kJ/m²K)	Area (m²)
Ground Floor Plaste				rboard ce	iling, ca	rpeted chipb	oard floor						9.00	49.13
11.0 Heat Loss Floors Description Type				Construction U-Value (W/m²K)					Kappa (kJ/m²K)	Area (m²)				
Ground Floor Ground Floo			nd Floo	r - Solid	Suspen	ded concrete	floor, carp	peted				.15	75.00	49.13
11.2 Internal Floor Description				uction									Kappa	Area (m²)
First Floor		Plaste			iling, ca	rpeted chipbo	oard floor						(kJ/m²K) 18.00	49.13
12.0 Opening Type Description				e Glazing		Glazing Gap	Argon Filled	G-val		rame Type	Frame Factor	U Value (W/m²K)		
Solid Door	Man	ufacture	Solid	Door				Cup	Tilled			. , , ,	1 40001	1.50
Patio Door	r Man r	ufacture	Wind	dow	I	Double Low-E	Soft 0.05			0.63	3		0.70	1.50
Window		Manufacture Win			I	Double Low-E	Soft 0.05			0.63	3		0.70	1.30
13.0 Openings Name	Opening Ty	pe	Locatio	on		Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Coun	t Area (m²)	Curtain Closed
Front Door	Solid Door		[1] Ext	ernal Wal	II	East	. 7100			, (,	(,		2.18	
Front Windows	Window		[1] Ext	ernal Wa	II	East	None	0.00					7.14	
Rear Windows	Window		[1] Ext	ernal Wal	II	West	None	0.00					3.81	
Rear Patio Door	Window		[1] Ext	ernal Wa	II	West	None	0.00					3.91	
LH Window	Window		[1] Ext	ernal Wa	II	South	None	0.00					0.99	
14.0 Conservatory			[	None										
15.0 Draught Proofing		[	100					%						
16.0 Draught Lobby		[	No											
17.0 Thermal Bridg	ging		[	Calculat	e Bridg	ges								
17.1 List of Bridges	-		L			,								
Source Type		Bridge	Туре					Length	Psi	Imported	ı			
Independently assessed E2 Other lint		er linte	els (includ	ling oth	er steel lintels	5)	12.32	0.050	No					
Independently as		E3 Sill						9.42	0.034	No				
Independently assessed E4 Jamb							26.10	0.040	No					
Independently assessed E5 Ground flo				,	,			20.25	0.060	No				
Independently assessed E6 Intermedi					_		20.25	0.000	No					
Independently assessed E10 Eaves (in							12.20 8.05	0.123	No No					
Independently assessed E12 Gable (in Independently assessed E16 Corner (r				at Celling	g ievei)		10.04	0.003	No					
. ,			all between dwellings			10.04	0.120	No						
•		•	II - Ground floor			8.05	0.160	No						
•		ty wall	l - Intermediate floor within a		8.05	0.000	No							
dwelling Table K1 - Default P4 Party wal			- Roof (in	sulation	n at ceiling lev	rel)	8.05	0.240	No					
Y-value				0.051 W/m²K										
18.0 Pressure Test	ing			Yes										
Designed AP <sub>50</sub>				5.00					m³/(h.m²	1) @ 50 P:	а			
Property Tested ?			I					/ (	, _ 5011	-				
, ,			I.						m³/(h.m²	1 @ EU D	2			
As Built AP <sub>50</sub>			L						111 / (11.111	, w 50 P	u			





#### 19.0 Mechanical Ventilation

#### **Summer Overheating**

Windows fully open Windows open in hot weather Cross ventilation possible Yes **Night Ventilation** No

Air change rate **Mechanical Ventilation** 

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

MV Reference Number

**Duct Type** 

8.00

Yes

No Database

Mechanical extract ventilation decentralised

500230 Flexible

#### 19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room	Coun	
	Туре		
0.16	Through Wall	1	
	Fan Kitchen		
0.16	Through Wall	1	
	Fan Other We	t	
	Room		
0.18	In Room Fan	1	
	Other Wet		
	Room		

#### 20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

#### 21.0 Fixed Cooling System

#### 22.0 Lighting

Internal

Total number of light fittings Total number of L.E.L. fittings Percentage of L.E.L. fittings

No

11 11 100.00 %

#### **External**

No External lights fitted Standard

#### 23.0 Electricity Tariff

24.0 Main Heating 1 Database Percentage of Heat 100

Database Ref. No. Fuel Type Main Heating SAP Code In Winter

In Summer

18493 Mains gas **BGW** 104 89.9 86.7



Regs Region: England **Elmhurst Energy Systems** SAP2012 Calculator (Design System) version 4.12r02

%



PCDF Controls  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

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 Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	None	

#### Recommendations

Lower cost measures

Further measures to achieve even higher standards

	Tunical Cost	Typical savings	Ratings after improvement			
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>		
Solar water heating	£4,000 - £6,000	£30	B 86			
	Tunical Cost	Typical savings	Ratings after improvement			
	Typical Cost	per year	SAP rating	<b>Environmental Impact</b>		
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 95			

