Land South Of Dinting Vale, Glossop

Wain Homes (North West) Ltd

Energy & Sustainability Statement

September 2022

1.INTRODUCTION

This energy and sustainability statement has been prepared to support the planning application for the proposed residential development on land south of Dinting Vale, Glossop. The proposed scheme would deliver 100 dwellings, comprising a range of house types (10 in total), made up of 1-, 2-, 3- and 4-bedroom dwellings which include apartments, semi-detached and detached dwellings. Please see Figure 1 for the proposed layout:

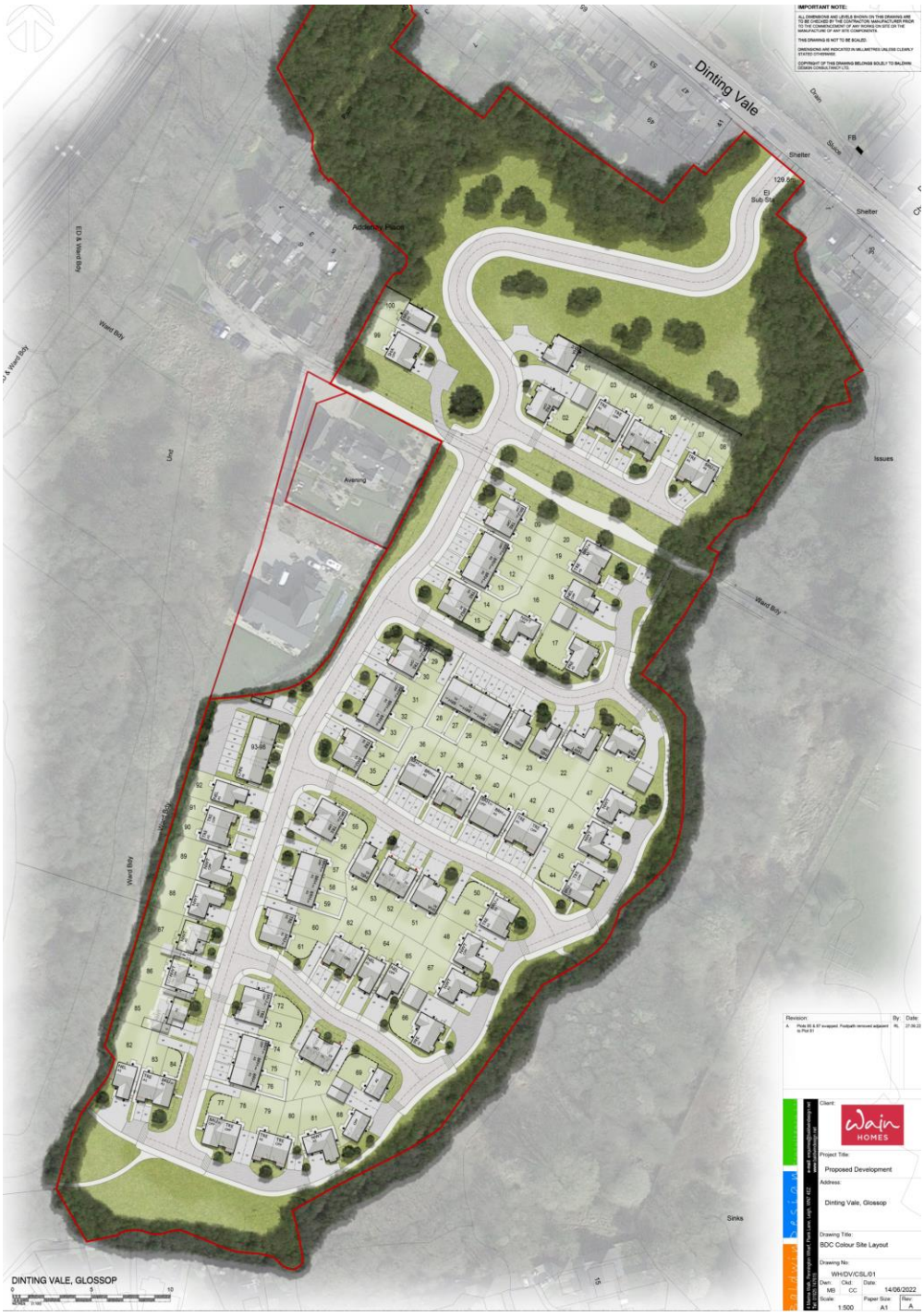

Figure 1. Proposed Site Layout

This report has been specifically prepared to identify the building conservation of fuel and power associated with a development specification based on Wain Homes (North West) Limited' specification and house types. It measures the savings in energy delivered to the properties and the reduction in Carbon Dioxide emissions between the proposed Wainhomes' build specification and the minimum thermal performance of building elements in Part L 2013 of the Building Regulations. It should be noted that building to the minimum thermal requirements of Part L 2013 would not guarantee compliance with the Building Regulations.

Due to development timescales, it is assumed that the plots will be constructed under Part L 2021, which therefore supersedes Part L 2013 requirements delivering a 31% carbon reduction. These carbon reductions will be achieved through higher fabric standard and low carbon and renewable energy systems.

2. STANDARDS FOR ASSESSMENT

2.1 The Building Regulations

The Building Regulations set standards for the design and construction of buildings, primarily to ensure the safety and health for people in or around those buildings, but also for energy conservation and access to and about buildings.

The Building Regulations contain various sections dealing with definitions, procedures, and what is expected in terms of the technical performance of building work.

The regulations are split into fourteen technical parts (A to P), which deal with individual aspects of the construction.

Since 2006 the Building Regulations for Conservation of Fuel and Power have gone through a further review and the CO2 compliance levels have been improved by a further 25%. Part L 2010 is now the current standard and as such it is this improved compliance level that we are proposing to construct the dwellings to on this site.

The current edition of Part L of the Building Regulations requires regulated CO2 emission levels from new build domestic buildings to be approximately 30% lower than 2006 levels.

2.2 Part L: Conservation of Fuel and Power

Part L is the technical standard by which the energy performance of buildings is controlled. It stipulates that reasonable provision should be made for the conservation of fuel and power. It is proposed that the dwellings will be constructed following a fabric first approach to meet, and exceed where possible, the current Building Regulations, with insulation standards, thermal bridging and air leakage improved beyond the minimum compliance levels. In addition, consideration will be given to building design, passive solar design and energy efficiency site layouts, where possible.

As the development at Dinting Vale comprises only new build housing its energy performance is to be assessed in accordance with Part L 2021 and will deliver a 31% carbon reduction over current regulations.

3. PERFORMANCE OF THE PROPOSED BUILDINGS

SAP is the Government's Standard Assessment Procedure for Energy Rating of Dwellings. SAP 10 is adopted by government as part of the UK national methodology for calculation of the energy performance of buildings. It has been used in this section to demonstrate compliance with Building Regulation Part L 2021 and to provide energy ratings for the dwellings in question.

All homes built to the specification proposed within this document will be designed and built to exceed the SAP standards.

SAP is a cost related indicator relative to the running costs associated with heating, hot water, and lighting. Having such an impressive SAP rating for the development goes some way to addressing fuel poverty for owners of new homes.

The following table shows how the development specification compares to the standards set out in Part L 2021 and shows the U values used within the SAP calculations.

Element U Values (w/m^{2}k)	Part L 2021	Developer Specification
Floor	0.13	0.12
Roof	0.11	0.09
Walls	0.18	0.18
Windows	1.2	1.2
Doors	1.0	1.2
Thermal Bridging	Y=TBC	Y=0.04
Air Permeability (@50Pa)	5	4.99

The timetable to deliver the 31% reduction in energy, including lights and appliances, used in these homes will commence from the first plot through to the last. The agreed performance is a total saving over the entire site and is a minimum specific to each home.

The saving of energy used and CO_2 from fossil fuel through building fabric performance is inherent in the home for its entirety and will not degrade or become dysfunctional over the lifetime of the home.

4. ENERGY DEMAND

Prior to commencement on site, SAP calculations will be produced for all new proposed dwellings and they will exceed the minimum requirements for Part L 2021.

5. ENERGY EFFICIENCY

Optimising energy efficiency is crucial to reducing energy demand and the resultant emission of CO2 into the atmosphere. A commitment has been made to exceed this requirement through the improved specification delivered in the building fabric and through advanced building controls. Dwellings at the Dinting Vale development will be designed to reduce energy consumption through a good quality external envelope and efficient building services.

All dwellings will aim to achieve the proposed standards set in Approved Document L1A of the Building Regulations (2021).

The summary points below outline key measures to be adopted by the developers in achieving appropriate levels of energy efficiency improvement at the Dinting Vale development;

- Basic passive solar design, subject to site limitations with buildings designed to maximise day lighting and displace the need for artificial lighting.
- Improved thermal performance at junctions.

- Improved levels of insulation and air tightness.
- Improved windows and building fabric specifications to reduce heat loss (U Values).
- Mechanical Ventilation
- Effective heating controls.

100% of the light fittings are to be high-energy efficiency with electrical appliances specified as 'A rated' or better.

The approach adopted by the developers is in accordance with the principles set out in 'The Energy Efficiency Hierarchy' which states that energy demand can be lowered through enhancing the performance of the thermal envelope of the building.

6. NATIONAL POLICY

Government policy in relation to the energy performance of buildings has been ever evolving over the past decade, following commitments to reduce the emission of greenhouse gases – particularly CO2. In June 2019, the Government announced it had set a new zero green house gas emission target for the UK by 2050, compared with the previous target of a least 80% reduction from 1990 levels. Following the introduction of the 2013 edition of Building Regulations Part L, the successive updates now require regulated CO2 emissions levels from new build domestic buildings to be approximately lower than the 2006 levels. They propose that Building Regulations are the appropriate mechanism to drive future standards with respect to energy consumption, with local authorities able to apply the optional requirements of the national technical standards with respect to water consumption and space. They next revision of the Building Regulations Approved L1A (Part L) document was published in December 2021. The CO2 emissions requirement of Part L 2021 is set at a 31% improvement on Part L 2013.

Chapter 14 of the NPPF (July 2021) outlines it energy and climate change policies. New development should be planned in ways that:

- Avoid increased vulnerability to the range of impacts arising from climate change
- Can help to reduce greenhouse emissions, such as through its location, orientation and design. Any local government requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

In determining planning application, local planning authorities should expect new development to:

- Comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable
- Take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption

7. LOCAL POLICY

The High Peak Local Plan was adopted in April 2016. The following policy underpins the whole Local Plan and provides a fundamental set of criteria that is to be applied to all development proposals to ensure that all development provides integrated solutions which meet social, economic and environmental objectives at the same time. It seeks to ensure that all new development within High Peak makes a positive contribution towards the sustainability of communities and to protecting and where possible enhancing the environment within the plan area. The policy sets out a framework for the planning of the area that addresses locally identified priorities and reflects its unique and distinct characteristics.

Policy S 1 - Sustainable Development Principles

The Borough Council will expect that all new development makes a positive contribution towards the sustainability of communities and to protecting, and where possible enhancing, the environment; and mitigating the process of climate change, within the Plan Area. This will be achieved by:

- Meeting most development needs within or adjacent to existing communities.
- Making effective use of land (including the remediation of contaminated land and reuse of brownfield land), buildings and existing infrastructure.
- Making efficient use of land by ensuring that the density of proposals is appropriate (and informed by the surrounding built environment).
- Taking account of the distinct Peak District character, landscape, townscape, roles and setting of different areas and settlements in the High Peak.
- Protecting and enhancing the natural and historic environment of the High Peak and its surrounding areas including the Peak District National Park.
- Providing for a mix of types and tenures of quality homes to meet the needs and aspirations of existing and future residents in sustainable locations.
- Supporting the local economy and businesses by providing for a range of economic development that provide employment opportunities suitable for local people in sustainable locations, and generally encourage larger developments to incorporate mixed uses where possible so as to reduce the need to travel.
- Minimising the need to travel by promoting development in locations where there is access to a broad range of jobs, services and facilities which are accessible by foot, cycle or public transport with minimal reliance on the private car.
- Minimising the risk of damage to areas of importance for nature conservation and/or landscape value, both directly and indirectly and ensuring that there is suitable mitigation for a net gain in biodiversity and the creation of ecological networks.
- Minimising carbon or energy impacts associated with development according to the principles of the 'energy hierarchy' by minimising the need for energy through the appropriate siting,

orientation and design of new buildings; the use of renewable energy sources and ensuring building construction and other forms of development address the challenge of climate change by meeting high environmental standards with particular regard to energy efficiency, water efficiency, use of sustainable materials, encouraging waste reduction, recycling, including where appropriate the local- or on site-sourcing of building materials;

- Further mitigating the impacts of climate change by seeking reductions in greenhouse gas emissions across the High Peak; in particular through supporting the delivery of renewable and low-carbon forms of energy (either via stand-alone installations, or installations integrated within new/existing developments), where this is considered acceptable against all other Development Plan Policies as a whole.
- Requiring that all new development addresses flood risk mitigation/adaptation, ensuring for example that sustainable drainage systems are considered at the outset within proposals (and to comply with legislative requirements).
- Seeking to secure high quality, locally distinctive and inclusive design in all development that can be accessed and used by everyone including disabled people.
- Seeking to secure developments provide a high standard of amenity for all existing and future occupants of land and buildings, ensuring communities have a healthy, safe and attractive living and working environment and the risks from potential hazards are minimised
- Maintaining and where possible enhancing accessibility to a good range of services and facilities, and ensuring existing infrastructure and services have the capacity to support development when required.

The proposed development accords with this policy. The provision of homes on a site allocated for housing within an accessible location within the Settlement Boundary of Glossop; it therefore provides for housing within the Glossop community in compliance with criterion 1 of the policy. The gross site area is circa 4.7 hectares but having regard to site constraints (topography, trees and the unadopted road running through the site) only 2.5 hectares is developable for housing. The scheme therefore achieves a gross density of 21 dwellings per hectare and a net density of 40 dwellings per hectare which is considered an efficient and effective use of land in compliance with criterion 2 and 3 of the policy.

The scheme fully takes into account local character and further details are given in the Design and Access Statement submitted in support of the scheme. The proposals are compliant with Criterion 4 of the policy. The scheme will have no adverse impacts on the setting of the nearby Grade II listed Church, archaeological works can be secured by condition, trees can be protected during construction as can wildlife. The scheme also provides for new tree planting and habitat creation. The submitted Landscape and Visual Impact Assessment notes no adverse impacts on the setting of the Peak District National Park. The proposals are therefore compliant with criterion 4 and 5 of the policy.

The proposals provide for 1, 2, 3 and 4 bed homes in 10 different house and apartment types in a demonstrably sustainable location that has already been found to be acceptable in principle for housing development through adoption of the Local Plan. The proposed dwellings will appeal to a broad section of the community. Accordingly, it is considered that the proposals comply with criterion 6 of the policy. The proposals will have benefits for the local economy during the construction phase. Once built new residents will obviously create expenditure within the local economy all to the benefit of the local community. Accordingly, it is considered that the proposals comply with criterion 7 of the policy.

The site is in a highly accessible location. The proposals also include a travel plan to help minimise reliance on the private motor vehicle. Accordingly, it is considered that the proposals comply with criterion 8 of the policy. The proposals provide for suitable mitigation in relation to nature conservation and will provide for a net gain in biodiversity. All of these matters can be secured by way of standard planning conditions. Accordingly, it is considered that the proposals comply with criterion 9 of the policy.

This Energy & Sustainability Statement details carbon and energy reducing measures that will be employed. Accordingly, it is considered that the proposals comply with criterion 10 and 11 of the policy. The proposals are accompanied by a Flood Risk Assessment and Drainage Strategy that has adopted the drainage hierarchy in determining the most appropriate method for dealing with surface water. The proposals will not increase the risk of flooding elsewhere. Accordingly, it is considered that the proposals comply with criterion 12 of the policy.

The proposals will result in the creation of a high quality, locally distinctive and inclusive design as demonstrated through the submitted Design & Access Statement. Accordingly, it is considered that the proposals comply with criterion 13 of the policy. The proposals include for generous amounts of open space and adequate separation between dwellings. The scheme will foster a healthy, safe and attractive living environment. Accordingly, it is considered that the proposals comply with criterion 14 of the policy. As noted previously the site is highly accessible and contributions will be made towards social infrastructure where such requests meet the CIL Regulations, and it is viable to do so. Accordingly, it is considered that the proposals comply with criterion 15 of the policy.

It is also important to reference *'Policy EQ 1 - Climate Change'* as the new proposals also take this policy into account.

The Council has adopted strategies to mitigate and adapt to climate change. In addressing the move to a low carbon future for High Peak, the Council has included plans for new development in locations and ways that reduce greenhouse gas emissions and adopt the principles set out in the energy hierarchy. The Council intends to meet part of its future energy needs through renewable or low carbon energy sources and will therefore encourage and support the provision of renewable and low carbon technologies, including both stand-alone installations, and micro-renewables integrated within new or existing development.

A low carbon future for High Peak will be achieved by:

- Requiring new development to be designed to contribute to achieving national targets to reduce greenhouse gas emissions by using land-form, layout, building orientation, tree planting, massing and landscaping to reduce likely energy consumption and resilience to increased temperatures
- Ensuring that renewable energy installations do not have an adverse impact on the integrity of any European sites, (including by project- level HRA where appropriate), wildlife sites, protected species or habitats, or the landscape and landscape setting of the Peak District National Park
- Supporting opportunities to deliver decentralised energy systems, particularly those which are powered by a renewable or low carbon source
- Supporting connection to an existing decentralised energy supply system where there is capacity to supply the proposed development, or design for a future connection where there a firm proposals for such a system

- Ensuring that renewable / low carbon energy generation developments and associated infrastructure are supported by requiring Design Statements to include an assessment of how any impacts on the environment and heritage assets, including cumulative landscape, noise and visual impacts, can be avoided and/or mitigated through careful consideration of location, scale, design and other measures
- Applications for new build residential development in the Buxton Sub-Area should meet the optional national technical requirement for water efficiency of 110 litres per person per day to minimise the phosphate load to the River Wye via discharges from the Buxton Sewage Treatment Works, unless it can be demonstrated that doing so would adversely impact on a scheme's viability.
- Unless it can be demonstrated that it would not be technically feasible or financially viable, requiring that commercial developments over 1,000m2 the Building Research Establishment Environmental Assessment Method (BREEAM) good standard as a minimum
- Promoting energy efficiency and the use of renewable / low carbon energy in new development and through retro-fitting of existing buildings
- Supporting sustainable waste management by provision of space for recycling and composting
- Supporting the use of sustainable design and construction techniques including the use of recycled materials in construction, including where appropriate the local or on-site sourcing of these building materials
- Supporting high water efficiency standards and measures to recycle and minimise water consumption

8. LIFETIME HOMES ASSESSMENT

All the properties on the development will be constructed in accordance with Part M 4(1) of the building regulations which makes provision for disabled, or wheelchair bound people to be able to gain access to the properties and be able to move around the ground floor with access to cloakroom facilities.

9. WATER USAGE

Policy EQ1 referenced in section 7 of this statement requires measures to limit water use to no more than 110 litres / person / day. In line with policy LP32 and Building regulations 2021, water use will be managed effectively throughout the development through the incorporation of appropriate efficient measures.

Water Efficiency Measures include the use of efficient dual flush WCs, low flow showers and taps and appropriately sized baths will be encouraged with the aim to limit the use of water.

Please see table below which shows how the development could achieve a result less than the required 110 litres / person / day. The calculation results in a total water consumption of 99.8 litres / person / day.

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	4.5	1.46	0.00	6.57
	Part flush Volume (litres)	3	2.96	0.00	8.88
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	4.00	1.58	1.58	7.90
Bath (where shower also present)	Capacity to overflow(litres)	156.00	0.11	0.00	17.16
Shower (where bath also present)	Flow Rate(litres / minute)	6.00	4.37	0.00	26.22
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	12.30	0.44	10.36	15.77
Washing Machine	(Litres/kg dry load)	8.17	2.1	0.00	17.157
Dishwasher	(Litres/place setting)	1.25	3.6	0.00	4.5
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
	(5)	Total Calculated use (litres/person/day) =SUM(column 4)			104.16
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			94.78
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			99.8

10. CONCLUSION

This report demonstrates that the development of new homes at Dinting Vale, Glossop when constructed to the building fabric specification proposed by Wain Homes (North West) Limited there will be a 31% carbon reduction on the development. This will be achieved on all plots through the use of passive measures such as improved insulation and improved heating and ventilation controls.

The development will also help to conserve potable water supplies in the area by limiting the daily use per person to 99.8l.

The proposed scheme also meets both current local and government policies in respect of sustainability.

It is important to note that given the timelines in front of us, the properties on the scheme will be constructed under Part L 2021, which is due to come into force shortly. This supersedes current regulations - Part L 2013 requirements and further carbon reductions will be achieved through higher fabric standards and low carbon and renewable energy systems. In order to meet these regulatory requirements, the fabric of the buildings will also be further improved over current typical standards.

APPENDIX A:

Fabric Data and Method of Heating

Item	Brief Description	Confirm	Notes
1A			
1B	Ground floor is 150mm precast beams with Thermal concrete block (0.19 W/mK) and beam floor with 150mm Xtratherm Thin-R XT/UF and 75mm concrete screed which achieves the U value shown	✓	Design U value for floors = 0.11 W/m2K
1C	Upper floors over garages (semi exposed) are 200mm mineral fibre quilt between joists with 27mm Gyproc Thermaline PLUS and 15mm Gyproc Wallboard plasterboard and achieve the U value shown	✓	Design U value for floors = 0.17 W/m2K
2A	Main external wall to two storey properties is 100mm brick outer leaf, 150mm cavity fully filled with Ecobead Platinum insulation, 150mm Fibolite block (0.24W/m.k)) and with 15mm plasterboard and achieves the U value shown	✓	Design U Value for external walls = 0.18 W/m2K
2B	Semi Exposed wall to garages is 100mm Fibolite block (0.24W/m.k)) with 50mm Gyproc Thermaline Super plasterboard and achieves the U value shown	✓	Design U Value for external walls = 0.35 W/m2K
2C	Semi Exposed vertical wall to room in roof is 120mm (2 x 60mm) Kingspan Thermopitch TP10 between rafters with Visqueen vapour barrier and 50mm Gyproc Thermaline Super insulated plasterboard	✓	Design U value for semi exposed walls = 0.16 W/m2K
3A	Conventional lofts have 100mm mineral wool quilt between joists and 2 layers of 200mm laid 90 degrees across it (500mm in total) 15mm standard plasterboard and achieves the U value shown	✓	Design U value for traditional roofs = 0.09 W/m2K
3B	Sloping ceiling to room in roof is 120mm (2 x 60mm) Kingspan Thermopitch TP10 between rafters with Visqueen vapour barrier and 50mm Gyproc Thermaline Super insulated plasterboard	✓	Design U value for roof to room in roofs = 0.16 W/m2K
4A	A wall mounted fan flued condensing Regular Boiler with auto ignition is installed. This is a mains gas boiler	✓	Ideal Logic System Boilers as per the heating design and the specification information at https://idealboilers.com/uploads/documents/Logic_System_Spec_Sheet.pdf
4B	A wall mounted fan flued condensing Combi Boiler with auto ignition is installed. This is a mains gas boiler	✓	Ideal Logic System Boilers as per the heating design and the specification information at https://idealboilers.com/uploads/documents/Logic_System_Spec_Sheet.pdf
5A	The Controls for the gas fired wet central heating system when **the total floor area of the property is over 150m2 and/or the heating system has a system boiler shall be**	✓	Property to have at least two space heating zones, each with an independently controlled heating circuit

			Each space heating circuit should be provided with I. Independent time control, and either, II. A room thermostat or programmable room thermostat located in a reference room served by the heating circuit, together with individual radiator control such as TRVs on all radiators outside the reference rooms or III. Individual networked radiator controls in each room on the circuit IV. The controls used can be classed as a delayed start thermostat.

5B	The Controls for the gas fired wet central heating system when **the total floor area of the property is less than 150m2 and the heating system has a Combi boiler shall be**.	✓	Property to have a single space heating zone. with an independently controlled heating circuit The heating circuit should be provided with I. Independent time control, and either, II. A room thermostat or programmable room thermostat located in a reference room served by the heating circuit, together with individual radiator control such as TRVs on all radiators outside the reference rooms or III. Individual networked radiator controls in each room on the circuit IV. The controls used can be classed as a delayed start thermostat.
6A	Boiler to be fitted with weather compensator	✗	
6B	A Gledhill Indirect hot water cylinder is installed in the house types. Manufacturers declared heat loss factors have been included.	✓	Sized as per the hot/cold water designs. Manufacturers losses as per information un the Gledhill Instruction Manual
7	The central heating pump and boiler are inside the main fabric of the dwelling	✓	
8	The boiler has an interlock to switch it off when there is no demand from the room thermostats.	✓	
9	Hot water can be provided independent of the central heating.	✓	
11	No secondary heating is installed	✓	
12	**A mix of Accredited methods and Calculated psi values** of limiting thermal bridging are installed at every junction in the main fabric.	✓	Psi Values used are as per the Frame-Tech Structures Limited "Junction Details for Psi Values, February 2017.

13	All windows/patio doors are double glazed with low E glazing. Frame factor, emissivity and transmissions factor are all undefined. U Value is manufacturers declaration	✓	U value is 1.2 W/m2K. Windows as per the specification provided by New View Window Systems Limited letter dated the 26th January 2012.
15	A loft hatch is installed. This is well insulated and well-sealed.	✓	
16	A Wastewater Heat Recovery System (WWHRS) is required.	✓	Wastewater heat recovery is specified for all bathroom showers.
16A	A Positive Input Ventilation from Loft system has been specified.	✗	All house types shall use a System 1 Ventilation system with background ventilation (Trickle vents)
16B	Photovoltaic Cells have been specified to meet the requirements of the building regulations.	✓	
17	External doors are from composite material and have little glazing and are specially insulated. U value is manufacturer's declaration.	✓	U value is 1.2 W/m2K.
17A	French Doors are as 13 above	✓	U value is 1.2 W/m2K. Windows as per specification provided by New View Window Systems Limited letter dated the 26th of January 2012.
18	No open chimneys or flues are present.	✗	
19	Building Regulations Part L 2021 apply.	✓	
20	These SAP calculations presume an air permeability of 4.99	✓	The SAP assessments use an air permeability figure of 4.99. ALL PROPERTIES ON THE DEVELOPMENT WILL REQUIRE AIR TESTING.
21	Trickle ventilators are fitted to windows	✓	Trickle vents are required when a System 3 method of Ventilation is used.
22	Low energy (LE) lights are installed to meet building regulations.	✓	100% of lights must be low energy.
23	Cross ventilation is possible on most floors and the windows can be fully opened in summer to prevent overheating.	✓	
24	A gas hob and electric oven have been provided	✓	
25	Postal addresses for the properties have been provided.	✓	Partial post code used