Newett Homes

Proposed development at: Fenay Bridge

Sustainability Report – As Built

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Introduction

This report has been written on behalf of Newett Homes to determine sustainable approaches to construct the properties at the proposed Fenay Bridge site considering the Kirklees Councils 'Climate Emergency Action Plan' of carbon neutral homes by 2038.

Kirklees Local Plan (adopted February 2019) explores a range of different policies. This report will focus on LP26 Renewable and low carbon energy.

Within this proposal it will detail how Newett Homes will implement a high efficiency specification on all the plots on the new development and how they will consider the following factors of: fabric improvements, passive solar, material sourcing and waste, fabric air tightness, low energy lights, heating systems and controls, renewable technologies and water usage – all in which will attribute to ensuring the new site is as sustainable as possible.

The Site

The development is located within the Kirklees district and will be a site which helps promote a high-quality and socially inclusive community. There will be a total of 68 plots on the site including: semi-detached, terrace and detached house types

Figure 1: Site layout

Sustainability Strategy

To help improve the sites sustainability Newett Homes have suggested that an 'Enhanced Construction Specification' is applied to all plots. This will mean that the end-users of the dwellings will benefit from the sustainable build.

As the improvements will be built into the fabric of the building they should last for the lifetime of the dwelling to ensure the carbon and energy usage of the dwellings will continue to as low as possible once the site is completed, which will result in the site being sustainable for a much longer period.

Low carbon strategies for the site include enhanced building fabric e.g. high performance lintels, limiting thermal bridge heat loss, energy efficient fixed building services including low energy lighting and additional heating controls along with renewable technologies such as photovoltaic panels (PV).

All the carbon sustainability strategies are discussed in more details below.

Building Fabric Improvements

Newett Homes have proposed an enhanced fabric specification for all the dwellings at Fenay Bridge which will exceed the requirements of the current Building Regulations (Part L 2021).

Heat loss through the fabric of the building plays a large part in a dwelling's carbon footprint. A home which is poorly insulated will see an increase in the heat lost through the walls, floors, and roofs.

The external wall will be insulated with 125mm Dritherm 32 insulation (K=0.032), this is a 19% improvement over the maximum permissible external wall U value of 0.26Wm^2K.

Another area of significant enhancement is the ground floor which will have 150mm PIR board to achieve a U value of 0.12Wm^2K. This demonstrates a 33% improvement over the standard for a ground floor, currently required to achieve a maximum of 0.18Wm^2K.

The fabric improvements beyond Building Regulation requirements will ensure that the running costs for the home are kept to a minimum with less fuel needed to keep the home at a comfortable living temperature.

Furthermore, Newett Homes will look at installing glazing with a good solar to heat coefficient (g value) which will help manage both solar gains and losses thus reducing heating costs and carbon emissions.
All glazing will have low-emissivity coatings to reduce heat transfer through the windows.

These measures and in addition to excellent workmanship on site will ensure that the plots achieve a good level of air tightness. All properties will be designed to achieve a result far surpassing the requirements of the Building Regulations which will in turn reduce the demand on the heating system and ensure the building can maintain a constant heat.

Passive Solar

Passive solar design is a concept of designing a building to reduce the need for energy. This is created by minimizing heat loss in winter and the heat gained in summer.

Passive solar design also utilises the use of natural light and ventilation as much as possible, providing a more comfortable home and improves the quality of life for the occupants.

The properties on the site will be carefully designed and positioned to take benefit of passive solar gain wherever possible.

Materials

To support the local economy and reduce the emissions associated with transportation of goods wherever possible, materials will be sourced locally. Furthermore, careful consideration will be given to ensure materials are ordered when needed to avoid double handling/damaging before use.

Manufacturers of building materials have an obligation to ensure the materials used during manufacturing are responsibly sourced. The materials used on this project will be sourced from manufacturers that hold such credentials and where available 'A' rated materials (as defined in the BRE Green Guide to Specification) will be installed. These selections will include evaluations of cost and performance as well as environmental considerations.

By using high quality materials and providing good workmanship on site, the heat loss associated with dwellings will decrease, which will reduce the site carbon footprint as the heating demand will be reduced. Likewise, by using local tradesmen and suppliers it will help grow the local economy.

Waste

Construction waste is a key element to be considered in achieving a reduction in all waste – it is estimated that 25-30% of all waste generated is construction related.

Waste can be generated by incorrect storage of materials, general handling losses and surpluses. These wastes can be reduced by ensuring that manufactures instructions are followed regarding handling, installing, and storing materials and good site management practices are followed, such as building to the NHBC standards and highlighting opportunities to avoid creating unnecessary waste.

Low Energy Lighting

According to a study from the Energy Saving Trust, in most homes, lighting accounts for around 15% of an annual electricity bill. Traditional bulbs waste a lot of their energy by turning it into heat meaning, they are inefficient to run, and any heat produced is lost in the ceiling.

An energy saving bulb can not only reduce a household electricity bill, but it can also positively impact the environment by reducing a dwellings carbon footprint which equates to a reduction in CO^2 emissions – all bulbs installed in the dwellings will be of a low energy type.

Heating Systems and Controls

The chosen heating system and heating controls within a property will have a large impact on the emissions expelled into the environment. Newett Homes will install boilers and cylinders that are energy efficient and will ensure suitable heating controls are also installed to help reduce a dwellings carbon footprint.

An 'A' rated combi or system boiler will be installed to each plot along with a cylinder with a low declared heat loss. A low declared loss results in a more efficient cylinder as it is better in the retention of heat so the boiler will not need to work as hard to get the hot water up to temperature.

Time and temperature zone controls divide the dwelling into two separate heating zones that are independently programmed (e.g. ground floor and first floor may be timed separately) according to occupation so that only the parts of the dwelling that are used are heated. This helps to save on fuel bills and carbon emissions as certain areas of the house are not heated unnecessarily.

All dwellings on this site will be provided with the function to separately zone control the heating system. The requirement from building control is for dwellings under 150m^2, zone control is not a requirement, but it will be implemented by Newett Homes to ensure each plot is as efficient as possible. Reducing the emissions produced and saving costs for the homeowner.

Renewables

Photovoltaic panels (PV) capture the sun's energy using photovoltaic cells. The cells convert the sunlight into electricity that can be used to run household appliances and for lighting. PV cells do not need direct sunlight to work and so can still generate some electricity even on a cloudy day or when facing a more northerly elevation. Newett Homes are proposing to install photovoltaic panels to all of the dwellings on the Fenay Bridge site, on the most southernly orientation.

Water Usage

Approved Document G - Sanitation, hot water safety and water efficiency of the Building Regulations sets a whole building standard for water use of 125litres per person per day.

With respect to water usage, within all the plots on the proposed development, water efficient devices will be fully evaluated and installed to ensure that they will achieve water consumption levels of less than 125 liters per person per day.

The following devices will be considered for each home:

- Water saving taps
- Water saving cisterns
- Low pressure showers.
- Flow restrictors to manage water pressures to achieve optimum levels.
- Water meters to all premises with guidance on water consumption and savings.

Conclusion

This Sustainability Statement details how the project at Fenay Bridge will incorporate sustainable design in order to adhere to the planning requirements of the Kirklees Climate Emergency Action Plan of carbon neutral homes by 2038. This approach involves:

- Enhanced fabric specification
- Renewable technology
- Lower water usage within the homes
- Reduction of on-site and during construction material wastage
- Passive solar gain through design
- Energy efficient heating installation

AS Built SAP Results:

Newett Homes have implemented all the proposals found within this report, as a result each plot is a minimum of a B EPC rating, which could be increased further by installing additional photovoltaic panels.

Below are the figures exported from SAP to show the dwelling metric figures vs the target metric figures and the percentage improvement for the primary energy rating, emission rating and the fabric efficiency rating for all 68 plots on the site.

Plot Reference	DPER	TPER	% DPER < TPER	DER	TER	% DER < TER	DFEE	TFEE	% DFEE < TFEE
Plot 1	61.97	65.7	5.68	11.82	12.56	5.89	39.97	43.3	7.69
Plot 2	64.46	65.7	1.88	12.3	12.56	2.07	39.53	43.3	8.7
Plot 3	62.77	63.92	1.79	11.98	12.23	2.04	38.3	41.84	8.46
Plot 4	62.99	63.92	1.46	12.02	12.23	1.72	38.09	41.84	8.97
Plot 5	65.43	66.77	2.01	12.41	12.75	2.67	35.32	38.67	8.68
Plot 6	65.34	65.55	0.32	12.37	12.52	1.2	34.21	37.65	9.14
Plot 7	64.45	66.77	3.48	12.25	12.75	3.92	35.32	38.67	8.68
Plot 8	65.34	65.55	0.32	12.37	12.52	1.2	34.21	37.65	9.14
Plot 9	58.07	59.94	3.13	11.1	11.48	3.31	34.06	36.91	7.73
Plot 10	57.43	59.42	3.35	10.98	11.38	3.51	33.59	36.48	7.92
Plot 11	58.07	59.94	3.13	11.1	11.48	3.31	34.06	36.91	7.73
Plot 12	57.43	59.42	3.35	10.98	11.38	3.51	33.59	36.48	7.92
Plot 13	65.43	66.77	2.01	12.41	12.75	2.67	35.32	38.67	8.68
Plot 14	64.03	65.55	2.32	12.15	12.52	2.96	34.21	37.65	9.14
Plot 15	65.43	66.77	2.01	12.41	12.75	2.67	35.32	38.67	8.68
Plot 16	64.03	65.55	2.32	12.15	12.52	2.96	34.21	37.65	9.14

Plot 17	54.06	54.83	1.4	10.31	10.45	1.34	40.56	43.85	7.51
Plot 18	63.18	63.92	1.16	12.06	12.23	1.39	38.16	41.84	8.79
Plot 19	63.62	64.9	1.98	12.12	12.38	2.1	39.75	39.96	0.52
Plot 20	61.98	63.49	2.37	11.81	12.12	2.56	38.47	38.8	0.85
Plot 21	58.07	59.94	3.13	11.1	11.48	3.31	34.06	36.91	7.73
Plot 22	57.43	59.42	3.35	10.98	11.38	3.51	33.59	36.48	7.92
Plot 23	58.93	59.27	0.57	11.19	11.28	0.8	42.59	45.53	6.45
Plot 24	52.25	53.35	2.06	10.05	10.22	1.66	35.09	38.72	9.39
Plot 25	63.57	63.92	0.54	12.13	12.23	0.82	38.46	41.84	8.08
Plot 26	63.77	65.7	2.94	12.17	12.56	3.11	40.1	43.3	7.38
Plot 27	56.17	58.24	3.55	10.77	11.13	3.23	39.42	42.72	7.74
Plot 28	58.07	59.94	3.13	11.1	11.48	3.31	34.06	36.91	7.73
Plot 29	57.43	59.42	3.35	10.98	11.38	3.51	33.59	36.48	7.92
Plot 30	53.01	53.26	0.46	10.06	10.13	0.69	41.01	43.89	6.56
Plot 31	53.43	53.59	0.31	10.13	10.19	0.59	41.31	44.17	6.46
Plot 32	63.18	63.92	1.16	12.06	12.23	1.39	38.16	41.84	8.79
Plot 33	64.42	66.05	2.47	12.29	12.62	2.61	40.27	43.44	7.3
Plot 34	54.45	56.22	3.16	10.39	10.76	3.44	38.07	41.13	7.44
Plot 35	53.59	54.22	1.17	10.2	10.34	1.35	39.93	43.39	7.98
Plot 36	65.38	65.92	0.82	12.4	12.59	1.51	34	37.62	9.61
Plot 37	54.04	57.78	6.48	10.35	11.07	6.5	27.3	30.37	10.09
Plot 38	65.38	65.92	0.82	12.4	12.59	1.51	34	37.62	9.61
Plot 39	62.15	63.92	2.77	11.88	12.2	2.62	38.41	38.82	1.05
Plot 40	62.15	63.92	2.77	11.88	12.2	2.62	38.41	38.82	1.05
Plot 41	63.57	63.92	0.54	12.13	12.23	0.82	38.46	41.84	8.08
Plot 42	63.77	65.7	2.94	12.17	12.56	3.11	40.1	43.3	7.38
Plot 43	63.57	63.92	0.54	12.13	12.23	0.82	38.46	41.84	8.08
Plot 44	63.77	65.7	2.94	12.17	12.56	3.11	40.1	43.3	7.38
Plot 45	65.08	66.53	2.19	12.38	12.67	2.29	40.59	43.27	6.2
Plot 46	75.16	76.46	1.7	14.25	14.52	1.86	47.74	51.67	7.6
Plot 47	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39
Plot 48	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39
Plot 49	65.08	66.53	2.19	12.38	12.67	2.29	40.59	43.27	6.2
Plot 50	66.39	67.52	1.67	12.62	12.86	1.87	41.49	44.09	5.89
Plot 51	65.42	66.05	0.95	12.43	12.57	1.11	40.62	44.12	7.92
Plot 52	64.17	65.11	1.45	12.19	12.4	1.69	39.75	43.34	8.27
Plot 53	65.08	66.53	2.19	12.38	12.67	2.29	40.59	43.27	6.2
Plot 54	66.39	67.52	1.67	12.62	12.86	1.87	41.49	44.09	5.89
Plot 55	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39
Plot 56	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39
Plot 57	65.08	66.53	2.19	12.38	12.67	2.29	40.59	43.27	6.2
Plot 58	66.39	67.52	1.67	12.62	12.86	1.87	41.49	44.09	5.89

Plot 59	65.42	66.05	0.95	12.43	12.57	1.11	40.62	44.12	7.92
Plot 60	64.17	65.11	1.45	12.19	12.4	1.69	39.75	43.34	8.27
Plot 61	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39
Plot 62	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39
Plot 63	65.08	66.53	2.19	12.38	12.67	2.29	40.59	43.27	6.2
Plot 64	66.39	67.52	1.67	12.62	12.86	1.87	41.49	44.09	5.89
Plot 65	65.42	66.05	0.95	12.43	12.57	1.11	40.62	44.12	7.92
Plot 66	64.17	65.11	1.45	12.19	12.4	1.69	39.75	43.34	8.27
Plot 67	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39
Plot 68	65.49	66.37	1.33	12.43	12.63	1.58	42.24	47.14	10.39