

SUSTAINABILITY STATEMENT

WOODWARD COURT, MIRFIELD

JSP SUSTAINABILITY LTD
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EXECUTIVE SUMMARY

- Bellway Home's residential development at Woodward Court, Mirfield includes the construction of 75 no. properties.
- Measures will be enacted throughout the construction phase to ensure a sustainable development is created.
- Bellway Homes operates a nationwide timber procurement policy and affords advantage to materials with a lesser environmental impact.
- Eco-sanitary ware and flow restriction devices will be included in the construction of every property.
- A site waste management plan will operate at the construction site.
- Energy efficiency measures will be included in the construction specification of every home.
- Bellway Homes will pursue a non-gas heating strategy at the development in advance of the Future Homes Standard. Low carbon heat pumps will provide the space and hot water heating for every home.
- The site's forecasted emission rate represents a 65.55% saving over Part L.

1 INTRODUCTION

JSP Sustainability Ltd has been commissioned by Bellway Homes to prepare a Sustainability Statement to accompany the planning application for the proposed residential development off Woodward Court, Mirfield The application seeks permission for the construction of 75 no. residential properties, landscaping and associated highway works.

This Statement will detail how Bellway Homes intends to construct a zero carbon ready development, exceeding national standards, including the most recent amendments to the Building Regulations Part L. By constructing energy efficient homes and incorporating sustainable design features into the design of the site at large, Bellway Homes will deliver a low carbon development, lessening the impact of climate change and promoting climate resilience. The following topics are considered in detail;

- Material Selection
- Waste Management
- Health & Well-being
- Water Efficiency; and
- Energy Efficiency and renewable energy

A number of documents have been used to complete this report. These include;

National Planning Policy Framework (NPPF) includes a presumption in favour of sustainable development. The Framework expands upon the guiding principles and objectives of a successful planning system. These include the building of a strong and competitive economy, delivering high quality housing, requiring good design and meeting the challenges of climate change.

Approved Document L sets fabric efficiency standards and together with SAP, establishes a maximum CO_2 emission rate for new build residential properties. The Approved Document is the Government's sustainable design benchmark in England.

The Future Homes Standard: 2019 Consultation on changes to Part L and Part F of the Building Regulations for new dwellings. (January 2021) provides a summary of the received responses to the 2019 consultation and the Government's intentions to revise Part L of the Building Regulations in 2022 and introduce a FHS in 2025.

The Future Homes and Buildings Standards: 2023 Consultation was published in December 2023. Within the consultation the Government presented two options for the technical specification of the Future Homes Standard. Both options confirm a shift to low carbon electric heating

Kirklees Local Plan does not include a sustainable development policy which establishes targets over and above the requirements of the Building Regulations Part L. Policy LP47, Healthy, active and safe lifestyles, which encourages "initiatives to promote energy efficiency within homes." Policy LP5, Masterplanning Sites, requires the "assessment of the potential of energy efficient design including renewable energy schemes."

2 MATERIAL SELECTION

Bellway Homes subcontracts the majority of its development processes to suppliers and contractors. As such the effective monitoring of the processes and practices of all contractors is key to delivering an efficient and environmentally sustainable supply chain. To this end Bellway Homes forms strong collaborative relationships with all its suppliers. Indeed, as many as 82% of all Group suppliers have worked with Bellway Homes for 3 years or more. Of these, the key suppliers have auditable environmental management systems and policies in place which have been certified to ISO 14001 or similar.

Bellway Homes and its contractors operate an ethical timber procurement policy which has at its core a commitment to purchase legally and sustainably sourced timber. Suppliers of timber must produce 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.

When specifying materials at the design stage the sustainable credentials of a product are rated alongside their affordability, lifecycle costs, durability, availability and ease of use. This exercise guarantees Bellway Homes gives due consideration to the environmental impact of materials at the earliest design and procurement stage.

To confirm the environmental impact of materials, Bellway Homes proposed specification for the Woodward Court development was assessed against the Building Research Establishment's Green Guide. The Guide assesses the relative environmental impact of construction materials commonly used in buildings. Materials are given an overall rating of A+ to E, based on Life Cycle Assessments using the BRE's Environmental Profiles Methodology. The table below summarises the ratings anticipated;

Table 1 –Green Guide Ratings

	Description	Green Guide Reference	Rating
External Wall	Brickwork outer leaf, insulation, aircrete blockwork inner leaf, cement mortar, plasterboard on dabs, paint	806170615	A+
Party Wall	Twin leaf 100mm min. solid aircrete blocks with 100mm min. cavity including proprietary glass wool acoustic roll, type A wall ties, with gypsum-based board (9.8kg/m²) on dabs and paint to each side	818190008	A
Ground Floor	Screeded in situ concrete slab, over insulation on polyethylene dpm laid on blinded recycled aggregate sub base	8201000029	C
	Structural topping on beam and expanded polystyrene flooring.	820140015	A+
Intermediate Floor	T&G floorboards on timber I joists	807280024	A+
Internal Wall	Stud, plasterboard, paint	809760003	A+
Glazing	PVC-U window, double glazed	813100009	A
Roof	Timber trussed rafters and joists with insulation, roofing underlay, counterbattens, battens and UK produced slates	812410008	A+

3 WASTE MANAGEMENT

Bellway Homes will operate a Site Waste Management Plan at the application site. As an engaged partner in the WRAP initiative Bellway Homes conducts regular reviews of the Group's performance. At the present-time the Group is engaged in a drive to reduce the volumes of waste generated on site and increase the percentage of waste diverted from landfill through reuse and recycling. Current data confirms a national recycling rate of 98.1% and a 3.7% fall in the absolute volume of waste sent to landfill.

This level of performance is enforced through the adoption of a robust Site Waste Management Plan but also through effective and coordinated design and procurement. The following briefly summarises the policies contained within the Groups waste management policies and to be enacted as part of the SWMP for Woodward Court;

- Design to minimise wastage during the construction phase;
- Landform design and mass balance exercises are undertaken to retain as much material on site and reduce disposable volumes. There should be careful sub and topsoil storage and accommodation within the predetermined landform;
- Maximise the value of recycled aggregates through the separation of physical and chemical contaminates and through the careful matching of the materials generated with appropriate site use;
- Regular inductions and toolkit talks to all contractors and sub-contractors are standard. Careful site management of stockpiling and storage, segregation of waste groups and the prevention of cross contamination are implemented as standard;
- Agreements are in place with suppliers to reduce the amount of packaging on goods delivered to site. Take back agreements and *"just in time delivery"* are in place with key suppliers.;
- All waste contractors are required to segregate waste off site and provide records of such; and
- Waste streams to be reused on site or recycled offsite are to be identified and communicated to all contractors so that careful disposal is assured.

4 WATER EFFICIENCY

Approved Document G of the Building Regulations requires each new home to achieve a water consumption rate of no more than 125 litres per person per day. Bellway Homes propose to incorporate low flow sanitary ware and eco-sanitary products into the design of each property to achieve a low water consumption rate. This strategy will permanently reduce water consumption. The tables below summarise the proposed flow rates and capacities and the water efficiency calculation.

Table 2 – Flow Rates & Capacities

Fitting	
Toilets	6 & 3 litre dual flush
WHB Taps	4 litres/min
Kitchen Taps	6 litres/min
Bath	160 litres
Shower	6 litres/min

Table 3 - Water Efficiency Calculation

Installation Type	Unit of Measurement	Capacity/Flow Rate (1)	Use Factor (2)	Fixed Use (litres/ person/ day) (3)	Litres per Person day. =[(1) x (2)] +(3) (4)
WC (Dual Flush)	Full Flush (litres)	6.00	1.46	0.00	8.76
	Part Flush (litres)	3.00	2.96	0.00	8.88
Taps (excluding kitchen tap)	Flow rate (litres/min)	4.00	1.58	1.58	7.90
Bath (where shower present)	Capacity to overflow (litres)	160	0.11	0.00	17.60
Shower (where bath present)	Flow rate (litres/min)	6.00	4.37	0.00	26.22
Kitchen/utility room sink taps	Flow rate (litres/min)	6.00	0.44	10.36	13.00
Washing machine	Litres/kg dry load	8.17	2.10	0.00	17.16
Dishwasher	Litres/place setting	1.25	3.60	0.00	4.50
TOTAL	**(5)**				104.02

(5)	**Total Internal Water Consumption**	104.02
(6)	**Normalisation Factor**	0.91
(7)	**Internal Water Consumption [(5) x (6)]**	94.66
(8)	**External Water Use**	5.00
(9)	**Part G Water Consumption [(8) + (7)]**	99.66

A water consumption of 99.66 litres per person per day is calculated.

5 ENERGY STRATEGY

5.1 Local Policy

The Kirklees Local Plan encourages energy efficient development and the incorporation of low carbon or renewable technologies into new development. However, the Plan does not establish targets above and beyond those included in the Building Regulations Part L.

5.2 Future Homes Standard

In January 2021 the Government responded to the public consultation on the Future Homes Standard (FHS) and proposed revisions to Part L. The Government confirmed;

"The introduction of the Future Homes Standard will ensure that an average home will produce at least 75% lower CO_2 emissions than one built to current energy efficiency requirements…Homes built under the Future Homes Standard will be "zero carbon ready", which means that in the longer term, no further retro-fit work for energy efficiency will be necessary to enable them to become zero carbon homes as the electricity grid continues to decarbonise."

"The Building Regulations will continue to set a performance based standard rather than mandating or banning the use of any technologies. However, to ensure that new homes are zero carbon ready, we intend to set the performance standard of the Future Homes Standard at a level which means that new homes will not be built with fossil fuel heating, such as natural gas."

"Currently electrification is one of the few proven scalable options for decarbonising heat. As set out in the consultation, we expect heat pumps will become the primary heating technology for new homes under the Future Homes Standard."

A consultation on the full technical specification for the FHS was launched in December 2023. Within the consultation the Government presented two options for the notional dwelling within the new Home Energy Model. However, both recipes include the specification of electric heat pumps with a co-efficient of performance greater than one.

Importantly the Government concluded that further improvements to fabric energy efficiency were not desirable or necessary;

The performance requirements in this consultation closely resemble the fabric standards in the 2021 Part L uplift to the Building Regulations. We investigated including better walls, floors, roofs, triple glazing and improved thermal bridging. However, the only cost effective and practical

improvement we found could be made to the standard was an improvement in airtightness. This improvement in airtightness is matched with the change to a decentralised mechanical extract ventilation system, in line with Approved Document F, Volume 1: Dwellings.

The decision to keep fabric standards largely the same is driven by several factors. Firstly, the level set in 2021 will ensure that (with adequate ventilation) new homes do not generally experience damp and mould or excessive temperatures; an increase in fabric beyond this level does not give significant additional benefit. Secondly, it allows efficient low carbon heating, including modern heat pumps, to function well. The move to low carbon heating is central to the government's commitments to decarbonise housing, and so fabric must be set at a level that allows these systems to work efficiently. Again, increasing fabric beyond the proposed level does not deliver significant gains to the efficiency of heating systems. Thirdly, because the electricity grid is decarbonising rapidly, and the efficiency of heat pumps significantly reduces energy demand, further reducing total energy use is relatively less important than switching to electric sources of heat in efforts to decarbonise. Grid decarbonisation also means that fabric improvements are increasingly not a cost-effective intervention to reduce carbon. This means that as we increase fabric beyond the proposed level, the monetary value of carbon saved by increasing fabric efficiency is less than the cost of installing that additional fabric. As such, there are other interventions that decrease carbon and consumer bills in a more cost-effective way, such as (above) switching heat source and including solar PV panels."

Paragraph 4.2.3, Future Homes & Building Standard Consultation 2023

5.3 Part L of the Building Regulations

In anticipation of the FHS, the Government amended Part L of the Building Regulations on June 15th 2022 to deliver a saving of 31% in CO_2 emissions. The revisions are expected to provide the industry and supply chains with the incentive, skills and time to prepare for the FHS. The Part L 2021 Regulations include improved u-value backstops, the inclusion of a new Primary Energy target, updated CO_2 emission factors to take account of the progressive decarbonisation of the national grid and the retention of the Fabric Energy Efficiency Standard. The formulation of the target recipe also makes it necessary to include renewable generation or low carbon heating to deliver compliance with the target metrics.

5.4 Proposed Strategy

In response to local policy and the Building Regulations Part L, Bellway Homes will construct every home at the application site to a robust energy efficient specification capable of delivering compliance with the revised Fabric Energy Efficiency standard. Furthermore, Bellway Homes will pursue a low carbon electric heating strategy in advance of the Future Homes Standard, at the application site.

5.5 Energy Efficiency Measures

Bellway Home's exposure to the marketplace has confirmed that purchasers demand energy efficient homes with low operating costs and familiar user-friendly technologies. As such the Group's current construction specification has been tailored to these demands and incorporates many of the lean and clean measures of the Energy Hierarchy. Listed below are some of the measures that have been incorporated into the detailed design of the scheme;

- The construction specification of every home will include high levels of insulation in the ground floor, external walls and roof spaces. This will lessen heat loss from the building envelope and lower the energy requirement of every home;
- The detailed house type designs will incorporate intelligent junction design, including the specification of thermally broken lintels, to limit heat loss at non-repeating junctions;
- The house types elevations will have sufficient glazing provision in the principal living rooms to allow each home to benefit from helpful solar gain. This reduces the space heating and lighting requirement of each home;
- The heating designs of each house type will include thermostatic and time controls;
- Energy efficient lamps will be installed in every light fitting.
- Each property will be naturally ventilated using efficient decentralised and continuous extract fans to ensure the internal living environment will be healthy and comfortable.
- The homes will be built to an energy efficient masonry specification. The outer leaf will be an approved brick and the inner leaf will be a locally sourced aircrete thermal block with a kappa value of 60kJ/m^{2}K. This will ensure there is sufficient thermal mass to retain heat, both as a result of solar gain and internal heating;
- Each entrance will be illuminated with an energy efficient external light or provision will be made for a purchaser to install such a fixture; and
- The white goods installed in each property or offered to purchasers will be energy efficient with an A+/A rating.

The table overleaf provides a summary of the energy efficiency standards to be achieved in the design and construction of each home;

Table 4 – Specification Summary

Element	Part L	Enhanced Specification
Wall	0.30W/m^2K	0.24W/m^2K
Party Walls	0.20W/m^2K	0.00W/m^2K
Cold Roof	0.20W/m^2K	0.09W/m^2K
Floor	0.25W/m^2K	0.11W/m^2K
Glazing	2.00W/m^2K	1.30W/m^2K
Door	2.00W/m^2K	1.10-1.40W/m^2K
Air Permeability	10 m^3/(h.m^2) @ 50 Pa	4.0 - 5.1 m^3/(h.m^2) @ 50 Pa

The Government has concluded a consultation on the technical specification and the operation of transitional measures for the Future Homes Standard. A response is expected by the close of 2024. At the time of writing, it is not possible to forecast how many plots at the development site, if any, will be constructed post the implementation of the Standard. However, Bellway Homes will comply with any revised Regulations, and where necessary adhere to revised energy efficiency standards on plots that may start following the introduction of the Standard.

5.6 Housing Heating Strategy

The services specification of every home will include low carbon heat pumps to provide 100% of each property's space heating and hot water requirement. The systems are highly efficient. Correctly designed, commissioned and installed systems operate with coefficients of performance of 3-4. The systems are fed by mains electricity and their carbon reduction performance is expected to accelerate further as the National Grid decarbonises. The technology has also been identified by the Climate Change Committee and the Government as the preferred solution to low carbon heating. Each home will be **zero carbon ready** at the point of first occupation.

5.7 Forecasted Emission Rate & Energy Requirement

The specification summarised overleaf was modelled in SAP 10 to determine the anticipated emission rate and regulated energy requirement of the site. The table below summarises the results calculated.

Table 5 – Woodward Court Emission Rate

House Type	Target Emission Rate (kg/year)	Calculated Emission Rate (kg/year)	Energy Consumption (kWh/year)	Energy Requirement (kWh/year)
Ballister	6,607.87	2,133.79	32,722.06	14,392.68
Bowyer	7,837.63	2,768.41	42,991.93	18,523.14
Chandler	13,490.54	4,638.13	71,517.46	31,201.66
Farrier	1,273.74	449.43	6,904.18	3,011.34
Forester	8,497.82	3,153.23	49,574.95	21,019.68
Hooper	7,767.32	2,416.79	39,377.21	16,405.74
Jeweller	7,688.52	2,641.94	42,763.98	17,544.20
Philosopher	8,572.48	3,168.93	48,399.55	21,202.65
Scrivener	3,600.23	1,243.06	19,435.67	8,321.46
Turner	9,653.76	3,217.92	49,763.27	21,722.20
Watchmaker	12,597.60	4,343.04	70,169.08	28,837.36
TOTAL	87,587.53	30,174.66	473,619.34	202,182.11

The site's forecasted emission rate 30,174.66kg/year, represents a saving of 65.55% over and above the Building Regulations 2021. As an electrified scheme, the emission rate will lessen in the years ahead as the National Grid is decarbonised.

While heat pumps use electricity in operation, they deliver more energy to a home than they consume in operation (this is the co-efficient of performance). The energy generated by the heat pump is sourced from the ambient air adjacent to the external monobloc and for this reason is considered renewable. Afterall, the energy within the adjacent environment is not depleted by the heat pump and is continually renewed. The calculations confirm that 271,437.23kWh/year of energy will be generated by the heat pumps. This equates to 57.31% of the site's energy requirement.

6 EVALUATION

This Statement accompanies the planning application for the Bellway Homes residential development at Woodward Court, Mirfield and includes details on material selection, waste management, water efficiency, energy efficiency and low carbon energy generation. The key endeavours are;

- Bellway Homes operates a robust Sustainable Procurement Policy which emphasises the legal and sustainable sourcing of timber and other building materials;
- The construction specification for the site achieves A+ - C ratings when assessed against the Building Research Establishments Green Guide;
- Eco sanitary ware and flow restriction devices will be installed in every property;
- A site waste management plan will operate at the development;
- Recycling facilities will be provided to each home;
- The house types designs will aid the ability of each home to take advantage of positive solar gain;
- The construction and services specification proposed at Woodward Court will achieve robust energy efficiency standards capable of complying with the revised Fabric Energy Efficiency Standard;
- The space heating and hot water requirement of the development will be sourced from high efficiency low carbon heat pumps. Their inclusion in the strategy, ahead of the introduction of the Future Homes Standard, will deliver a zero carbon ready development;
- The heat pump specification will generate 271,437.23kWh/year of energy, equivalent to 57.31% of the site's regulated energy requirement; and
- The site's forecasted emission rate betters the Building Regulations Part L by 65.55%.

In conclusion the strategy addresses energy efficiency, water efficiency, pollution and material selection. When assessed against the definition included in the NPPF, the proposals can be described as sustainable. We therefore recommend the approval of these measures.