23 x dwellings
Springwell Lane, Whetstone, Leicester

SUSTAINABILITY STATEMENT TO SUPPORT PLANNING APPLICATION

20th September 2023 (Rev A – 9th January 2024)

Compiled by**:**
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1.0 EXECUTIVE SUMMARY

The proposed new development consisting of **23 x dwellings, Springwell Lane, Whetstone** has been designed to incorporate low energy and sustainable building design features using a fabric-first approach with energy efficient building services and renewable energy generation.

This report has been prepared to demonstrate how the scheme intends to deliver a sustainable and low carbon development.

The dwellings have been designed to maximise the 'Fabric First' approach, using the geometry of the building design, combined with strategically placed glazing, orientated to maximise passive solar gains. **A highly insulated building envelope** provides improvements of up to **39% better than Building Regulation** values.

The scheme proposed to use energy efficient gas fired boilers with waste water heat recovery to reduce hot water heating demand.

The total predicted baseline energy demand for the scheme is 118,652 kWh/year.

The scheme will generate renewable electricity via roof mounted photovoltaic panels across the development. It is predicted the development will have **40 kWp PV** that is predicted to **generate 29,040 kWh/year on-site renewable energy generation**. This will therefore provide **24.47% on-site renewable energy generation**. This will significantly reduce grid supplied energy.

The **annual carbon emissions** are predicted to be **reduced by 2.15%,** saving annual carbon emissions of **0.46 TonnesCO2/year** when compared to the new **Part L1 2021 of the Building Regulations.**

Internal water use will be equal to or less than 110 litres/person/day. It is proposed to use external water butts to reduce the use of potable water for garden irrigation.

All dwellings have considered the new Part O Overheating regulations and pass. The ground floor flats will require mechanical purge ventilation.

2.0 INTRODUCTION

The proposed new development consisting of **23 x dwellings, Springwell Lane, Whetstone** has been designed to incorporate low energy and sustainable building design features using a fabric-first approach with energy efficient building services.

This report has been prepared to demonstrate how the scheme intends to deliver a sustainable and low carbon development.

The Site plan is indicated in figure 1 below:

Figure 1: Site plan

This report will set out to summarise the following criteria:

1. Assess the predicted energy demand of the proposed development based on design and specification.
2. Determine the basecase energy demand and carbon emissions to comply with current Building Regulations (Part L1 2021)
3. Assess alternative renewable and low carbon technologies to provide on-site energy and carbon reductions.
4. Assess the means to achieve a minimum of 10% on-site energy generation through the use of low or zero carbon technologies.
5. Water conservation to achieve <110 litres/person/day and reducing the use of potable water.
6. Consider Overheating

The report will be carried out by an accredited On-Construction Domestic Energy Assessor, Robert Atherton, Director of Low Carbon Box. Energy assessments will be carried out using SAP 10 using the same methodology for compliance with Part L1 2021 of the Building Regulations.

3.0 SUSTAINABILITY STATEMENT

3.1 ENERGY EFFICIENCY – BUILDING FABRIC

The proposed dwelling will be constructed under Part L 2013. Below is the proposed specification for the new dwellings in tables 1 and 2.:

Table 1: Input data used for the SAP Calculations

Item	Standard	Specification
Walls – 150mm cavity	0.18 W/m2.K Kappa = 72.24 kJ/m2.K	102.5mm brickwork; 150mm cavity with 150mm Knauf Dritherm 32 Full Fill (0.032 W/mK); 100mm Plasmor Aglite Blockwork (0.31 W/mK, 1050 kg/m3); 12.5mm plasterboard on mortar dabs
Party wall	0.00 W/m2.K	Fully filled party wall
Block Partitions	Kappa = 21.21 kJ/m2.K	Medium dense Blockwork (0.45 W/mK, 1350 kg/m3); 12.5mm plasterboard on mortar dabs
Roof (ceiling)	0.10 W/m2.K	12.5mm plasterboard; 400mm insulation consisting of 100mm Knauf Loft Roll 40 between ceiling joists; 150mm + 150mm Knauf Loft Roll 40 over ceiling joists; ventilated roof void
Ground Floor	0.11 W/m2.K	Spantherm insulated floor system
Windows & Glazed doors	1.40 W/m2.K	Double glazed 'g' value = 0.66
Front door	0.94 W/m2.K	
Air test	4.00-5.00 m3/hr/m2	
Accredited Details	Recognised Construction Details	

Table 2 below compares the building fabric to current Building Regulation Standards.

Table 2: U value comparison

Element	Part L1 2021	Proposed	Improvement
	W/m2.K	W/m2.K	%
External Wall	0.26	0.18	30.77%
Roof (ceiling)	0.16	0.10	37.50%
Ground Floor	0.18	0.11	38.89%
Windows	1.60	1.40	12.50%
External Door	1.60	0.94	41.25%
Air Test	8.00	4.50	43.75%

The proposed building fabric indicated in Table 1 is proposed to have improvements of between 12.50-39%.

3.2 ENERGY EFFICIENCY – BUILDING TECHNOLOGY

3.2.1 Review of Low and Zero Carbon Technologies

The proposed space heating and domestic hot water can be delivered via a gas fired combination boiler with intermittent on/off extract fans to achieve Part L1A2013 Building Regulation Compliance.

In the following sections, we review low carbon technologies that will reduce energy demand (provide free energy) and reduce annual carbon emissions.

3.2.2 Waste Water Heat Recovery

Waste water heat recovery is the process of extracting

Under the EU Directive 2003/54/EC, waste water heat recovery is deemed a renewable energy under the term, 'hydrothermal energy' which means energy stored in the form of heat in water.

Under EU Directive 2009/72/EC also refers to 'ambient energy' meaning the naturally occurring thermal energy and energy accumulated in the environment with constrained boundaries, which can be stored in the ambient air, excluding exhaust air , or in surface or sewage water (e.g. waste water from a shower).

This process recovers heat from the waste water from a shower and pre-heats incoming cold water to the boiler or shower as shown in figure 2 below:

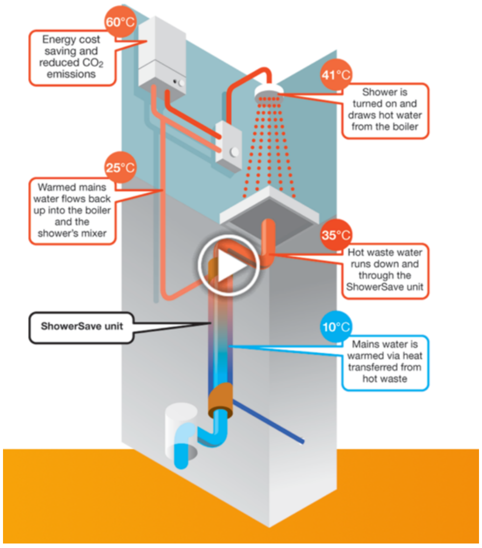

Figure 2: Waste Water Heat recovery system to each dwelling

The waste water heat recovery system, delivers direct energy savings to the future occupants and reduces fossil fuel use for heating domestic hot water.

The system efficiency varies, but in this case, 62.7% of the waste heat is extracted and pre-heats the incoming mains water to reduce heating and hot water demands. This provides direct savings to occupants with a passive, low technology solution with minimal maintenance.

It is proposed to install waste water heat recovery on the houses.

3.2.2 Mechanical Ventilation

Many standard dwellings have intermittent on/off extract fans. These turn on with the light switch and run for 15 minutes after use. Simple to use, but do not always provide adequate levels of ventilation.

Alternative systems to consider to deliver improved indoor air quality and a reduction of energy demand and carbon emissions are:

- System 3 – Continuous Extract Ventilation
- System 4 – Mechanical Ventilation with heat recovery.

System 3 – Continuous Extract Ventilation

This can be a central extract unit or individual fans. They run at a low velocity 24 hours a day providing extract ventilation at 0.3 litres/second/m2 of floor area. This ensures a constant air change. When the space is in use, then the fan will boost to provide purge ventilation. These fans often operate with low specific fan powers.

Examples of these are below. In figure 3 below, we see the Greenwood CV2 decentralised continuous extract fan. In figure 4, we see the Xpelair Xplus 2 central extract fan:

Figure 3: Xpealair CF40 decentralised continuous extract fan

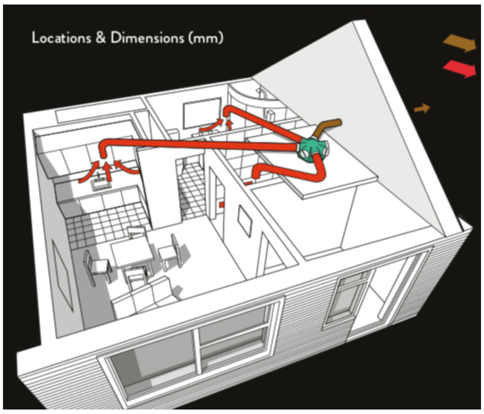

Figure 4: Xpelair Xplus 2 centralised continuous extract fan

Both options provide low specific fan powers when compared with the Domestic Building Services Compliance Guide 2013 as indicated in table 3 below:

Table 3: System 3 Continuous Extract Ventilation specific fan power

Ventilation System	Building Regs	Performance	Improvement
Greenwood CV2	0.7 watts/litres/second	0.19 watts/litres/second	73%
Xpealair Xplus 2 MEV	0.7 watts/litres/second	0.21 watts/litres/second	70%

These fans effectively provide fee energy with a reduction of up to 73% in fan power when compared with Part L1 2021 of the Building Regulations.

These units are also low noise and easily modified on site to ensure adequate levels of ventilation are provided. They also help in summer by providing a constant secure background air change.

In this case, the Greenwood CV2 individual fans suit the proposed dwellings as the lower ceiling heights are difficult to accommodate ductwork. These also meet planning requirements for sound when running at higher purge level. **We have therefore included for these and omitted the intermittent fans.**

3.2.3 Heating Controls

The standard heating controls for a small dwelling consists of a programmer that sets times for heating and the temperature. Then radiators have their own TRV's for local control of temperature. This would comply with Part L1 2021 of the Building Regulations.

To provide further enhancements, it is proposed to provide a more advance heating control system. The heating zones will be split so the living space and sleeping space are on separate heating zones, independently controlled by time and temperature. This provides a more flexible heating profile to the occupant and saves energy by not heating the whole dwelling at the same time.

For example, the heating in the bedrooms may come on at 9pm, rather than at the same time as the living space which may come on at 6pm. When add3d up over a period, this can provide significant energy saving.

On this basis, we are proposed to use at least two heating zones.

3.2.5 Building Technology Summary

Based on the low carbon technologies, the proposed specification is indicated in Table 4 below:

Table 4: Summary of building services for SAP

Item	Standard	Specification
Heating	Gas Fired Combi Boiler with integrated flue gas heat recovery system	Ideal Logic Combi C30
Heating Controls	Time & Temperature Zone Control	
Hot Water	Via the combi boiler	Waste water heat recovery to the shower
Ventilation	Natural Ventilation Continuous extract fans	Greenwood Unity CV2 dMEV

***To be confirmed by heating engineer*

The proposed integration of the low carbon technologies delivers direct savings to the building occupants. This provides an economic benefit as well as reducing annual carbon emissions.

In the next section, we will review renewable energy technologies.

3.3 RENEWABLE ENERGY

This section of the report conducts an appraisal of potential low carbon or renewable technologies which could be utilised at the site.

3.3.1 Wind Turbines

Wind turbines convert the power in the wind into electrical energy using rotating wing-like blades which drive a generator. Similar to PV, they can either be grid connected or used to charge batteries or on-site use.

Wind turbines can range from small domestic turbines producing hundreds of watts to large offshore turbines with capacities of 3MW and diameters of 100m. A detailed study for urban deployment should take into account wind speed and turbulence and potential noise pollution issues.

There are two main types of turbine available, horizontal or vertical axis. Horizontal axis turbines, (sometimes referred to a propeller type) range in scale from 0.5m to 100m diameter. Vertical-axis turbines rotate around a vertical axis, resulting in lower rotor tip speed and reduced noise and vibration issues.

In both cases, the output of the turbine will be dependent upon both the start-up speed of the blades and the specific gearing and generator design.

The efficiency and performance of small scale, and in particular, domestic scale wind turbines can vary, however, the most common cause of poor performance is poor sitting of the turbine. The turbulent wind conditions often found in urban locations undermines the performance of horizontal scale turbines as they have to regularly rotate Yaw to face the oncoming wind.

This process reduces the proportion of energy that the turbine can capture. Vertical axis turbines are designed to avoid this issue by always having blades facing the wind.

These performance issues mean that as a general rule, horizontal turbines are better suited to less turbulent wind regimes, whilst vertical axis turbines offer potential for installation in urban environments.

Figure 3: Wind turbine

In either case, the turbine must be mounted at a reasonable height to ensure that it can 'see' the wind. For urban deployment this means that roof mounted turbines still require a mast and the structural design of the building must be developed to incorporate the additional loads and stresses.

While the site is semi-exposed, the wind turbine would not be favorable for the development and local area due to noise and biodiversity issues. **This option is NOT considered.**

3.3.2 Biomass Heating

In the context of energy generation, the term 'biomass'· can refer to any organic substance that can be processed to produce energy, either solid matter or liquid biofuel. Biomass fuels are an alternative to conventional fossil fuels and are often considered to be near carbon neutral. This is because the growing plant or tree absorbs the same quantity of CO_2 in its lifetime as is released upon energy conversion.

Biomass is a renewable form of energy as it can be replaced over a short period of time. Biomass or biofuels are currently being produced from plantations of a variety of plant types, as well as from waste materials like cooking oil and waste wood. If waste wood is used, care must be taken to maintain fuel standards and exclude wood treatments such as preservatives and paint. Biomass heating is simple and proven technology, widely used in mainland Europe, and which compares well in running cost with mains gas. It can be implemented on a variety of scales from systems for small buildings up to systems of several MW capacities, with the capital cost of larger installations decreasing per unit of heat output.

A key issue for any site considering biomass is the need for substantial storage space allocation for the fuel stock. Although not impossible, the storage requirement and the need for regular fuel deliveries can create significant complications in the development of large scale urban biomass heating systems.

Biomass boilers can achieve similar efficiencies as good quality gas boilers, providing a significantly more efficient fuel burn than open fires or wood burning stoves. Large scale biomass boilers are particularly suitable for rural use such as farms or warehousing where space constraints are less onerous.

The capital costs of biomass boilers are greater than their gas equivalents. For example, the purchase price of a 50KW log boiler alone is in the region of £4,000-£5,000 and there is a requirement for additional 'buffer' storage compared to conventional gas systems. Note however that the extra over cost compared to gas for a 15KW output can be as high as £8,000-£12,000.

Figure 4: Biomass Boiler diagram

Figure 5: Woodchip pellets

It is also not uncommon for clients to require a standard gas boiler to provide back-up. Good practice for a 50KW log boiler would be to provide 3000 litres hot water buffer storage. The additional capital cost for biomass over gas is minimal when considered in the terms of the whole project value for new buildings, but the transportation and storage of fuel requires detailed consideration from the outset of any project.

Biomass has not been considered as a feasible option for this development due to issues associated with supply and storage of fuel; but the units have the potential to connect into a future system if it were to be constructed off site. **This option is NOT considered.**

3.3.3 Solar thermal hot water heating

Solar thermal panels collect solar radiation to heat water that can then be used for either space heating or domestic hot water. There are two types of competing solar thermal technologies; flat- plate and evacuated tube. In summary, evacuated tube collectors are more efficient and therefore require less active collector array than the equivalent output of a flat plate system. However, in general, capital costs for the two technologies are comparable.

The system consists of solar collectors that are often roof mounted. Liquid is passed through the solar collectors and then to a heat exchanger in a domestic hot water cylinder, which will also have a top-up heat source (gas, biomass, or electricity) to ensure reliability of supply.

Figure 6: Typical solar thermal panel

Solar thermal collectors can still produce energy from diffuse sunlight and are therefore less susceptible to performance reductions from orientation and angle compared to PV.

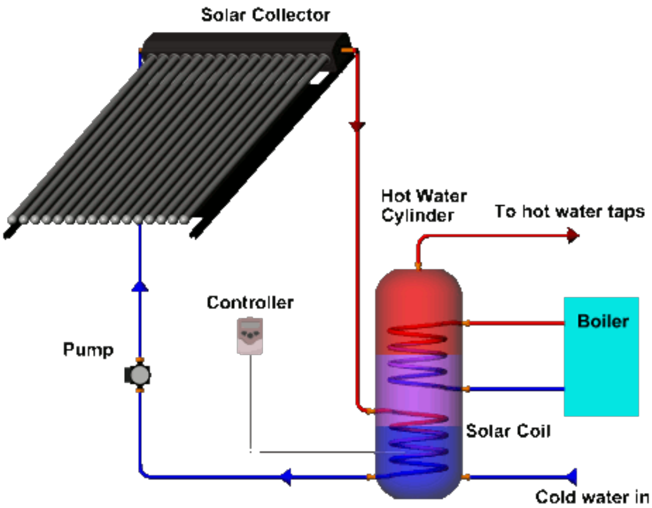

Figure 7: Solar thermal system diagram

A typical 3-4m^2 collector area system (area dependent on technology) is capable of providing 50% the annual domestic hot water demand for a typical 2-3 bed house. The proportion of hot water provided varies over the course of a year, with the system achieving 100% coverage during the summer months and 5% during the winter.

If properties are left during the day, or empty for periods over the summer, the hot water can recirculate through the system which can cause the panels to corrode and shorten their lifespan.

The advantages over this by using solar thermal are minimal and would add to the occupants' maintenance issues. It has been disregarded on this basis. **This option is NOT considered.**

3.3.4 Ground Source & Air Source Heat Pumps

A ground source heat pump (GSHP) harnesses the energy from the ground and upgrades it for use within buildings. Whereas ambient air temperatures can have a large swing throughout the year the temperature of the ground a few metres below the surface stays relatively stable. This makes it possible to use the heat in the ground during the winter months to meet our heating needs. In the summer months it is also possible to cool buildings using ground temperatures that are lower than ambient air.

A typical ground system consists of a ground to water heat exchanger often called the 'ground loop' or 'ground coil', a heat pump and a distribution system. Water (or other solution) is passed round the system 'absorbing' heat from the ground and upgrading this heat via the heat pump into the building.

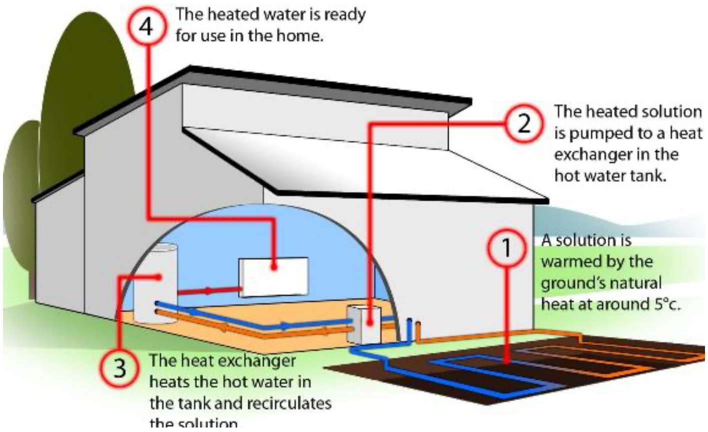

Figure 8: Ground Source Heat Pump system diagram

The heat exchanger can consist of either a vertical borehole system, where long pipes are driven deep into the ground or a horizontal trench system, which operates at shallower depths. The performance of a GSHP is measured using a COP (coefficient of performance). This defines the amount of useful energy output from the heat pump compared to the energy input. Typical systems can achieve a COP in the region of 350-400%.

The COP is maximised where the flow temperature of the heating circuit is between 35-40°C and therefore GSHP are ideally suited for connection to under-floor heating. The potential scale of GSHP is only limited by the availability of land for the ground loop and reasonable levels of energy abstraction. Typical costs for ground source heat pumps range from £800/kW for trench systems to £1,500/kW for vertical borehole systems.

Cheaper alternatives are the use of Air Source Heat Pumps. They have externally located condenser units that recover heat from the air and connect to the internal space heating & hot water system. They can be noisy, and it is important to consider the system set up to ensure the hot water immersion is not providing the space heating, causing high bills and increased carbon emissions.

At this stage, the preference is for the use of gas boilers due to more familiarity and lower running costs for the end use and focus the development budget on energy generation using photovoltaic panels.
This option is NOT considered.

3.3.5 Photovoltaics (PV)

Photovoltaic panels convert solar radiation into direct current electricity. In principle, they are an ideal source of renewable energy as they harness the most abundant source of energy on the Earth, the sun, and they produce electricity which is the most useful form of energy.

PVs are silent in operation, have no moving parts and have a long life with low maintenance levels. PV systems can be connected to the grid or battery arrays in remote locations. Grid connected systems consist of PV arrays connected to the grid through a charge controller and an inverter.

Figure 9: Typical PV installation to pitched roof

PV cells are more efficient at lower temperatures so good ventilation should be allowed around the PV modules where possible. Overshadowing and self-shading reduce energy production and in order to maximise energy output, the modules must face due south at an angle of approximately 35 degrees. Output is measured in kWp (kilowatts peak which is the maximum output a module will have under standard test conditions.

At present typical costs start in the region of £2,000-£3,000 per kWp for medium sized orders. The cost varies between systems to reflect the overall efficiency of the modules. Higher efficiency modules cost more but require less space for installation.

It is proposed to install a predicted 40 kWp photovoltaic system across the development to each dwelling (in the case of the flats, the top floor flat may have the PV). This is predicted to generate 29,040 kWh/year on-site renewable energy generation.

3.3.7 Renewable Energy Summary

It is proposed to use low carbon technologies as indicated in Section 3.2 and in addition, add 40 kWp PV to the scheme to generate on-site renewable energy.

3.4 CARBON EMISSIONS SUMMARY

To confirm, it is proposed to use a fabric first approach using the designed dwellings and the specification as outlined in Tables 1 & 3 together (Building Fabric + Low Carbon Technologies) and the renewable energy technologies outline in Section 3.

In order to calculate the Baseline carbon emissions and the predicted carbon emissions, we used SAP 10 and assessed each different dwelling type using the specifications and designs provided. A summary of the results are indicated in Table 4 below:

- Type – House Type
- Baseline – Total carbon emissions
- Proposed – Total predicted carbon emissions with chosen specification and design

Table 4: Carbon Emissions Summary for the Development

Type	No. Types	Baseline	Proposed	Saving	Saving
		kgCO2/yr	*kgCO2/yr*	*kgCO2/yr*	*%*
2B4P	14	12,462	12,216	247	1.98%
3B5P	6	5,827	5,661	166	2.84%
3B5P Mid	1	872	852	20	2.30%
4B6P	2	2,165	2,139	26	1.20%
TOTAL	**23**	**21,326**	**20,868**	**459**	**2.15%**

The scheme has to comply with the new Part L1 201 regulations which requires a 31% reduction in CO_2 emissions when compared with Part L1A 2013.

The total predicted annual carbon emissions for the Baseline are 21,326 kgCO2/year. Using the proposed designs and specification, the revised predicted carbon emissions are 20,868 kgCO2/year for the whole development.

This is an annual saving of 459 kgCO2/year (0.46 TonnesCO2/year) resulting in a 2.15% reduction in annual carbon emissions using a low-tech fabric first approach with increased levels of insulation, air tightness and energy efficiency and low carbon technologies combined with PV.

3.5 ENERGY DEMAND & RENEWABLE ENERGY GENERATION SUMMARY

To confirm, it is proposed to use a fabric first approach using the designed dwellings and the specification as outlined in Tables 1 & 3 together (Building Fabric + Low Carbon Technologies) and the renewable energy technologies outline in Section 3.

In order to calculate the Baseline energy demand, we used SAP 10 and assessed each different dwelling in accordance with Part L1 2021. Table 4 below confirms the predicted baseline energy demand for the development:

Table 5: Baseline Energy Demand for the 6 x dwellings

Type	No. Types	Energy Demand	Energy Generation	Generated
		kWh/year	*kWh/year*	*%*
2B4P	14	68,684	15,246	22.20%
3B5P	6	32,310	8,712	26.96%
3B5P Mid	1	5,040	1,452	28.81%
4B6P	2	12,618	3,630	28.77%
TOTAL	23	118,652	29,040	24.47%

The total predicted annual energy demand for the Baseline is 118,652 kWh/year. The **renewable energy generated from photovoltaic panels is predicted to be 29,040 kWh/year**. This **achieves 24.47% on-site renewable energy generation.**

4.0 SUSTAINABLE DESIGN & CONSTRUCTION

4.1 MATERIALS

The proposed scheme is to consider scoring the optimum points under the Code for Sustainable Homes Credit Mat 1, Environmental Impact of Materials by achieving excellent Green Guide for Specification ratings. The current proposal is to target the following Green Guide Constructions (Subject to review and approval):-

Table 6: Green Guide Materials Assessment

Element	Green Guide Ref	Rating	Description
Brickwork Cavity Wall	806170047	A+	Brickwork outer leaf, insulation, medium dense blockwork inner leaf, cement mortar, plasterboard, paint
Pitched Roof	812410007	A+	Timber trussed rafters and joists with insulation, roofing underlay, counterbattens, battens and tiles/slates
Ground Floors	820140031	B	Screed on insulation laid on grouted beam and medium dense solid block flooring
Upper Floors	807280026	A+	T&G floorboards on timber I joists
Loadbearing Internal Walls	809180008	B	Medium dense solid blockwork, plasterboard, paint
Non-loadbearing internal walls	809760003	A+	Timber stud, plasterboard, paint
Windows	813100009	A	PVC-U window with steel reinforcement, double glazed

For the Code for Sustainable Homes Credit Mat 2, Responsible Sourcing of materials, the design should consider materials that have accreditation to demonstrate the materials are responsibly sourced. All timber to be FSC or PEFC.

4.2 WATER CONSERVATION

INDOOR WATER USE

Under Part G of Building Regulations, indoor water use is restricted to 125 litres/person/day.

The target for Planning Condition 17 is 110 litres/person/day.

It is proposed to meet this standard with the following flow rates, batch capacity and flush volumes:

Table 7: indoor Water Calculation

Installation Type	Unit of Measure	Capacity/Flow Rate	Use Factor	Fixed Use (Litres/person/day)	Litres/person/day
WC (Single Flush)	Flush Volume (litres)		4.42	0	0.00
WC (Dual Flush)	Full Flush Volume (litres)	4	1.46	0	5.84
	Part Flush Volume (litres)	2.6	2.96	0	7.70
Taps (exluding kitchen utility)	Flow rate (litres/min)	6	1.58	1.58	11.06
Bath (where shower present)	Capacity to overflow (litres)	180	0.11	0	19.80
Shower (where bath present)	Flow rate (litres/min)	8	4.37	0	34.96
Bath only	Capacity to overflow (litres)		0.5	0	0.00
Shower only	Flow rate (litres/min)		5.6	0	0.00
Kitchen/Utility taps	Flow rate (litres/min)	6	0.44	10.36	13.00
Washing Machine	Litres/kg dry load	8.17	2.1	0	17.16
Dishwasher	Litres/Place Setting	1.25	3.6	0	4.50
Waster Disposal	Litres/use (1 = present, 0 - absent)	0	3.08	0	0.00
Water Softener	Litres/person/day	0	1	0	0.00
	5			Total Calculated	114.01
	6			Contribution Greywater	0.00
	7			Contribution Tainwater	0.00
	8			Normalisation factor	0.91
	9			Total water consumption	103.75
	10			External water use	5.00
	11			**Total Water Consumption**	**108.75**

The total predicted indoor water use is therefore 108.75 litres/person/day.

This meets the target of 110 litres/person/day.

4.3 OVERHEATING (PART O)

Each dwelling has been assessed using the Part O Simplified Method. All dwellings pass and meet the requirement to confirm they have compliant areas of glazing and external ventilation openings in line with part O Overheating of the Building Regulations.

The ground floor flat bedroom is 'easily accessible' as it has an opening within 2m of external ground level. Therefore, this will require mechanical purge ventilation of between 4-6 air changes per hour to securely ventilate the bedroom at night if the window is required to be closed.

5 SUMMARY

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Report by	Report date:	Signature:
Robert Atherton Msc Energy & Sustainable Building Design OCDEA and CfSH Assessor Of Low Carbon Box	20.09.2023 Rev A – 09.01.2024	