

Sustainability Statement

Project - Proposed Conversion to form 5 No Flats at
44 - 46 Coldharbour Road, Bristol

Job Number- 2102

Client – Property Acquisition and Investment

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1.0 INTRODUCTION

This Sustainability Statement is submitted in support of a planning application to convert the existing ground floor commercial unit and upstairs dwelling into 5 No flats at 44 - 46 Coldharbour Road, Bristol.

The purpose of this statement is to outline the sustainable development credentials of the proposal in response to Policies **BSC13 to BSC16** of the Bristol Development Framework Core Strategy.



Proposed Rear Elevation



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2.0 RESPONSE TO THE CORE STRATEGY

2.1 Policy BCS13 Climate Change

This policy seeks to ensure that new development contributes towards the mitigation and adaption to climate change and to meeting targets to reduce carbon dioxide emissions by a range of design measures, which are addressed below.

2.1.1 **Energy Efficiency**

This is an existing building being brought back into full use as five flats. The proposals for this existing building are designed to meet current Building Regulations in terms of energy efficiency and thermal insulation, but constrained by the existing building fabric which confronts us.

New windows / doors are proposed and positioned to allow natural lighting of all possible internal rooms.

The proposal will also meet the Building Regulation standards in terms of heating and ventilation. To enhance the energy efficiency of the new dwellings MVHR (mechanical ventilation with heat recovery) is being employed throughout using one of the most efficient units available on the market, thus capturing the otherwise waste heat which is usually ejected from the dwellings.

Hot water radiators are proposed as the heating system which can be thermostatically controlled in each room using thermostatic radiator valves and a roof thermostat. Hot water for the heating and water to showers, sinks and basins will be supplied from individual Worcester Greenstar 25si gas combination boilers within each dwelling.

Details of the proposed energy efficiency upgrades, heating and ventilation can be seen in the table on the following page in section 2.1.2.

These are for the “Residual Energy Demand” scheme, before renewables are added.



2.1.2 **Upgrading of Existing Thermal Elements, Heating and Ventilation Details**

Thermal Element/Controlled Service	Specification	U-value
Ground Floor Slab (existing)	Existing concrete slab (150mm)	0.68 / 0.55 W/m ² k
Ground Floor Beam and Block	Existing beam and block floor with screed (65mm)	0.43 / 0.41 W/m ² k
New Ground Floor	Screed (65mm), PIR (75mm) beam and block	0.22 W/m ² k
Exposed Floor	Target U value specification TBC	0.25 W/m ² k
Existing Wall Internally Insulated	Skim (3mm), plasterboard (12.5mm) PIR (60mm) batten cavity (15mm) concrete block (100mm) cavity (50mm) Brick outer leaf (102.5mm)	0.29 W/m ² k
Existing Wall Externally Insulated	Skim (3mm), plasterboard (12.5mm) concrete block (100mm) cavity (50mm) Brick outer leaf (102.5mm) PIR (70mm)	0.26 W/m ² k
New Wall Cavity	Skim (3mm), plasterboard (12.5mm) concrete block, lightweight (100mm), PIR (50mm), lowE cavity (50mm) concrete block (100mm), render (12mm)	0.27 W/m ² k
Wall to Corridor	Target U value specification TBC	0.28 W/m ² k
Dormer Cheeks and Face	Skim (3mm), plasterboard (12.5mm) PIR (150mm) between studs at 400cc	0.22 W/m ² k
Stud wall to Balcony	Target U value specification TBC	0.28 W/m ² k
Stud Wall to Eaves	Rafter insulation continues to eaves shelter factor applied to pitch roof U value in line with SAP conventions	0.1296 W/m ² k
Flat Roofs	Skim (3mm), plasterboard (12.5mm) Joists (225mm), PIR (150mm), Ply (9mm)	0.18 W/m ² k
Warm Pitch Roof	Skim (3mm), plasterboard (12.5mm) PIR (150mm) between rafters at 400cc, PIR, (20mm) over or under rafters	0.18 W/m ² k
Dormer Roof	Skim (3mm), plasterboard (12.5mm) PIR (150mm) between joists at 400cc, PIR, (20mm) over or under joists	0.18 W/m ² k
Ceiling to Eaves Void	Rafter insulation continues to eaves shelter factor applied to pitch roof U value in line with SAP conventions	0.1296 W/m ² k
Rooflights	Double glazed Argon filled LowE coating	1.30 W/m ² k
Windows	Double glazed Argon filled LowE coating	1.40 W/m ² k
Bi-fold Doors	Double glazed Argon filled LowE coating	1.10 W/m ² k
Solid doors	Insulated Doors	1.60 W/m ² k
Air Permeability	Default Air pressure test target score of 15.00 m ³ /hm ²	
Thermal Bridging	Not measured on change of use	
Thermal Mass	Medium (Low top floor)	
Ventilation	MVHR – Nuair MRXBOXAB-ECO-LP2	
Heating System	Gas fired condensing combi boiler, Worcester greenstar 25si compact ErP Efficiency: 89.8%	
Heating Controls	Programmer, TRV's & room thermostat with delayed start feature on thermostat	
Hot Water	From combi boiler, no hot water storage	
Lighting	100 % Low Energy lighting	



2.1.3 **Patterns of Development**

The site is in an excellent location in terms of access to public transport and sits within an extensive walking and cycling network.

2.1.4 **Adapting to Climate Change**

The measures that follow will assist in helping to adapt to the warming aspect of climate change.

2.2 **Policy BCS14**

2.2.1 Policy BCS14 is primarily focused upon the generation of renewable energy, the minimising of energy requirements and the incorporation of low carbon energy sources. Various technologies were considered for low and zero carbon technologies, and the following considerations of the pros and cons of dealing with an old building, Solar PV was chosen as the best technology to employ.

The scheme will therefore incorporate renewables in the form of 16 No 330Wp solar panels, eight on the roof facing Coldharbour Road and eight installed at the rear of the first floor terrace. These panels will be utilised directly by the flats, reducing their reliance on electricity from the national grid which still carries a heavy CO₂ burden.

In terms of the council requirement for renewables and zero carbon technologies these eight panels will provide enough electricity in a year to offset 20% of the residual energy left after the fabric and heating upgrades.

The results of our upgrades and application of renewable energy can be seen on the following page in section 2.2.2.



2.2.2 Bristol City Council Energy Strategy Summary Table

Below is the summary table giving energy and CO₂ summary emissions in which three rows have been populated.

Row 1, giving a Building Regulation Pass and the resulting energy / CO₂

Row 2, giving energy / CO₂ values after energy efficiency measures, and

Row 3, giving the resulting energy / CO₂ values after the employment of renewables on top of the energy efficiency measures.

	Energy demand (kWh pa)	Energy saving achieved (%)	Regulated CO ₂ emissions (kg pa)	Saving achieved on residual CO ₂ emissions (%)
Building Regulations Part L Compliance (baseline energy demand and emissions)	44930.35	-	10612.16	-
Proposed scheme after energy efficiency measures and CHP (residual energy demand and emissions)	39706.97	(11.63%)	9371.89	(11.69%)
Proposed scheme after on-site renewables	35872.19	9.66%	7381.84	21.23%
Total saving on residual emissions and energy demand	-	9.66%	-	21.23%



2.3 Policy BCS15

2.3.1 BCS 15 sets out a requirement for development to address the key issues listed below in order to deliver sustainable design and construction. The purpose of this section is to demonstrate compliance with BCS 15 and to address section 4 of the Climate Change and Sustainability Practice Note.

2.3.2 The key issues are:

- Maximising energy efficiency and integrating renewable/low carbon energy sources – this has been addressed in section 2.2 above.
- Conserving water resources and minimising vulnerability to flooding – this is addressed in section 2.4 below.
- Waste and recycling during construction and operation – this is addressed in this section.
- The lifecycle, type and source of materials to be used- this is addressed in this section
- Opportunities to enhance the biodiversity of the development - this is addressed in this section

2.3.3 Waste and recycling – Waste and recycling storage facilities are being provided to the new dwellings in the form of a shared bin store at ground floor level adjacent to the street, meeting the mandatory requirements of Bristol City Council’s waste strategy. The residents will be encouraged to use recycling waste bins where possible.

2.3.4 A waste management strategy will be produced which addresses waste management and storage during construction and occupation. It will contain procedures and commitments to divert the maximum possible waste produced from landfill.

2.3.5 Materials – The majority of the building elements will achieve a Green Guide rating of A+ to D, and the insulation used will be of a type with a low “global warming potential”.



- 2.3.6 Biodiversity – The site is one which borders on a busy Bristol road, and although bordering with a park with some nearby trees, has very little biodiversity itself. The renovations mainly involve the internal conversion of the existing building, however there is a small extension at ground floor level out into the upper terrace area of the rear garden. The existing lawn at the bottom of the garden is being retained.
- 2.3.7 Pollution – New gas condensing combi boilers with low NOx emissions will be incorporated into the building, these energy efficient technologies reducing the atmospheric pollution produced during the normal occupation of the building.
- 2.3.8 The thermal envelope and heating technologies employed in the scheme will comply with Building Regulations Part L1B, with the residents able to reduce their CO2 emissions below these levels by a further 20% as a result of low or zero carbon energy choices made in the design.
- 2.3.9 The development is to also incorporate secure cycle parking to encourage this mode of sustainable transport. This decreases the amount of cars which residents would be otherwise be tempted to own, leading to reduced pollution, and the increased health of the dwelling occupiers.



2.4 Policy BCS 16 Flood risk and water management

- 2.4.1 BCS 16 indicates that priority will be given to the development of sites with the lowest risk of flooding. All developments will also be expected to incorporate measures to reduce surface and water run off, including using sustainable drainage systems (SUDS).
- 2.4.2 The purpose of this section is to demonstrate compliance with BCS 16 and to address section 5 of the Climate Change and Sustainability Practice Note.
- 2.4.3 A consultation with the Environment Agency's "Risk of Flooding" website indicates that the part of the site on which the building is situated is in Flood Zone 1, giving it a low risk of flooding.
- 2.4.4 The site is already connected to the public sewer which will be utilized to discharge any remaining rainwater run off.
- 2.4.5 The toilets will each be equipped with water saving dual-flush toilets, and restricted flow wash hand basin taps. These small enhancements are expected to meet and exceed the requirements of the Building Regulation Part G (Water and Hygiene).



3.0 CONCLUSION

This scheme will provide additional, much needed dwellings in a sustainable location close to shops, services and facilities.

It will incorporate secure cycle storage within stores at ground level, and, as the site is located close to existing bus routes. It will therefore promote sustainable travel choices.

The scheme will be constructed in compliance with the 2013 Building Regulations, and with additional zero/low carbon technologies employed to reduce it's CO₂ emissions by more than 20% compared to a Building Regulation compliant scheme.

