

**SUSTAINABILITY STATEMENT FOR THE NEW HOUSE**  
**beside**  
**34 Parkwood Close BS14 0EA**

The proposed attached house will be built on the space beside 34 Parkwood Close.

**Energy Efficient Design**

The building will have a windows on the south , west and north elevations .The site is very well sheltered from all sides being a surrounded urban site.It is attached to No 34 on the east side and so there will be no heat loss from that side.

This is a new house and so will incorporate current standards of insulation and draught-proofing so as to comply with Building Regulations plus an improvement of a minimum of 20% to meet the standards required by Bristol City Council.

The interior spaces have been designed and dimensioned so that the waste and use of resources in constructing and operating them are kept to a minimum.

The exterior form is dictated by the site size and orientation. The provision of “high U value glass” to the windows and the and the limitation of their sizes helps to minimize heat losses.

The surrounding topography and landscape is such that there are no trees to provide shelter or shade for inside and outside spaces but this has the advantage that any external solar energy source will never be shaded.

The living room and kitchen windows are large enough to allow plenty of natural light so as to reduce the need to consume electricity for lighting during the day.

All of the windows in the new house will open to provide natural ventilation and the plan form is not deep so there will be plenty of cross ventilation.

**Energy Consumption(see also “Calculated Energy Demand” later)**

All of the internal lights will be low energy fittings and no external lights are anticipated at this stage.

An electric combi boiler has been chosen on the basis that it is ecologically clean at the point of use and an efficient up-to-the-minute design to 2019 SAP10.1 standard at 0.136Kg of CO<sub>2</sub> per KWh will reduce energy consumption as much as possible. The choice of a combi means that water will only be heated when needed rather than heated and then allowed to cool when not required. The heating system will be fitted with thermostats on all radiators in addition to the “house” thermostat and will have a timing clock that allows it to be programmed for each day as required with separate cut offs for the heating system for the house.

The energy figures initially show no provision for photovoltaic roof energy generation

but this is will be added to achieve a higher SAP rating.

### **Storm Water**

The rainwater pipes will discharge into collector vessels with overflows running to the existing storm drain. This water will then be available for watering patio plants and the like.

There is no local provision for a sustainable urban drainage system and so water not collected in the above mentioned storage vessels will be sent to the storm drain.

This is not an area where flooding is a problem so no flood prevention measures have been incorporated.

### **Construction Materials**

No demolitions are required before the new house can be built but it is envisaged that quite narrow trench fill footings will be used. This sort of footing is economical in its use of materials.

The house has been designed so as to minimise waste generation by using sizes to suit standard materials sizes.

The paints used in the decoration of the house will be non-toxic water based paints with eco labels such as FSC and the like.

Where possible materials will be obtained locally and it will be possible for all of the principal materials used to have a Grade A Breeam "Summary rating".

The windows and doors will be stained or painted timber so that they can also achieve an A rating.

At the end of this report there is a list of materials to be used and all are Breeam A rated.

The Design & Access Statement points out that the house is well placed within easy walking distance of all good local amenities and so car use will not be essential. There are plenty of bus services within a couple of hundred yards of the proposed house on the Queens Road giving access to the middle of Bristol.

There is provision for safe bicycle storage on site and this is shown on the drawings.

### **Calculated Energy Demand**

The energy demand for the house (without solar panels and without additional insulation) is Building Regulations compliant at 80 kw hrs per m<sup>2</sup> per year.

We can accommodate three south facing photovoltaic panels on the house above the front dormer but below the ridge. This addition is judged complimentary to the energy strategy and will provide a visual demonstration of sustainability.

Photovoltaic panels convert sunlight into electricity for use within a dwelling. PV panels use cells to convert light into electricity. A PV cell usually consists of 1 or 2 layers of a semi-conducting material such as silicon. The greater the intensity of sunlight, the more electricity is generated. PV systems can come in different forms. The most aesthetically pleasing are PV tiles which resemble roof tiles. However the most popular are modules which can either sit on the roof or be integrated into it. The technology is most efficient when oriented due south. However panels orientated south of east or west are suitable. Generally panels orientated away from due south require a greater surface area to generate a set amount of energy.

Assuming a typical panel output of 250kWh per year (south facing) , the house installation will give 750kWh per year. This will offset 117 kg/year of CO2.

We have opted for the most complimentary panel and utilized all the available roof space.

The house in a Building Regulations compliant form would have CO2 emissions as calculated of 965 kg per year. The 20% improvement over Regulation standards reduces this to 772 kg per year. Our proposals at this stage give a saving of 117kg/year giving emissions of 848 kg per year.

By upgrading the insulation to the walls and the roof as shown on the table below a further saving of 77kg per year is possible

The reduction shows emissions to 771kg/year and is a 20% reduction as required by Bristol City Council's Core Strategy .

The energy ratings show an improvement that is in accordance with that dictated by BCS 14.

### Approved Document L1B 2013

The proposed development falls within the scope of Approved Document L1B 2013. The Approved Document came into force in April 2014 and sets minimum fabric energy efficiency standards for conversion or change of use works. The table below summarises the key requirements.

**Table 3 – Minimum Standards**

Element	Minimum Standard
Wall	0.30W/m2K
Floor	0.25 W/m2K
Roof	0.18 W/m2K
Openings	1.60 W/m2K

Anticipated fabric efficiency and building services standards to be incorporated into the design.

**Table 4 – Enhanced Specification Summary & Comparison**

Element	Part L 2013	Enhanced Specification
Wall	0.30W/m2K	0.16W/m2K
Roof	0.20W/m2K	0.15 W/m2K
Floor	0.25W/m2K	0.17-0.19

		<b>W/m2K</b>
<b>Glazing &amp; Doors</b>	<b>1.60W/m2K</b>	<b>1.40 W/m2K</b>

**Summary of Materials to be used and their Breeam Ratings.**

**Outside walls, rendered Thermalite blockwork outer leaf, insulation, Thermalite blockwork inner leaf lined internally with 50mm Celotex with plasterboard lining. Summary Rating A.**

**Roof. Concrete tiles, batten roofing felt on timber roof structure with Celotex insulation between and under the ceiling joists. Summary Rating A**

**Load bearing partitions in dense blockwork with plasterboard on dabs and paint. Summary Rating A.**

**Non load bearing partitions, timber stud, plasterboard and skim, glass wool insulation. Summary Rating A.**

**Roof Insulation. Celotex insulation Summary Rating A. (This also has a zero ozone depletion potential rating A)**

**Wall Insulation. Expanded polystyrene. Summary Rating A. (This also has a zero ozone depletion potential rating A).**

**Internal Paint Finishes. Matt waterborne paint micro void resin or styrene acrylic resin Summary Rating A.**

**Gloss Waterborne paint; Summary Rating A.**

**Gound floor slab. Beam & Block floor with screed. Summary Rating A. (The Breeasm assessment is that the impact of the floor construction would not be sensitive to the type of insulation chosen so long as the insulation is not ozone depleting. This will be the case.**

**First floor chipboard on timber. Summary Rating A.**

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