

3 The Avenue, Clevedon Energy Statement

While the Victorian villa was designed as a high energy and well ventilated building, the cost of 21st Century energy demands that improvements are made to the fabric.

The windows have already been replaced with high performance units and further improvements become available with the addition of the extension.

The extension will be largely constructed of Structural Insulated Panels, giving exceptional insulation and air tightness to the walls and roof, way surpassing current standards so future-proofing the building.

The renewable energy is provided by photovoltaic panels on the extension roof providing 10Kw.

Annual energy production of 10,000kWh

Co2 saving at 0.256 kgCo2/kWh = 2,560Kg or 2.56 tonnes.

Electricity consumption for an average house 3,500kWh for lights and appliances.

Space heating will be provided by an Air Source Heat Pump with a co-efficient of performance of 3 which will use 30% of the electricity produced on site. 6,471kWh

Hot water, heated by a combination of PV and ASHP will be about 965kWh

A Tesla battery will store most of the surplus PV generation making the house near carbon neutral.

All space heating will be underfloor to take advantage of the low temperature heat provided by the ASHP.

The roof insulation of the existing house will be upgraded with PIR insulation and the external walls will be lined in insulated plasterboard to reduce heat loss.