

Headquarters

B9 Energy considers energy efficiency to be of equal importance to the generation of clean energy through new technology in the fight to reduce greenhouse gases. Therefore, in 1997 the company decided to build a headquarters for its growing business, which reflected this twin ethos.

Office Features

The two storey 470 sq metre building comprises an entrance lobby, open plan office, conference room, canteen, kitchen and WCs. The store attached to the office block contains the batteries and energy management centre plus a small computer suite.

The building is grid connected but aims to be a net zero electricity user.

Energy Efficient Features

The building is south facing with large windows and patio doors on the south side to take advantage of passive solar power and reduce heating and lighting costs. The balcony and roof overhang shields the windows from the strong sun in the summer but lets in sunlight and heat during the winter.

It is highly insulated using the KEPS insulated foam work system from Springvale EPS of Ballyclare. The walls are concrete sandwiched between 60mm of expanded polystyrene panels making them a total of 300mm thick. The floor and roof are also highly insulated.

Low energy lighting, designed by Concept Lighting of Belfast, uses the latest low energy lighting technology.

The windows from Pilkington Glass are UPVC double-glazed with a low emittance coating to help retain heat.

The building is fitted with a specially designed mechanical ventilation and heat recovery unit manufactured by Whitehouse Engineering of Newtownabbey. The incoming fresh air passes through a heat exchanger and to be warmed by the extracted air. The heat exchanger can be set to enable cool air to be circulated in summer.

Renewable Energy Features

The 16m Proven wind turbine can generate up to 6kW of electricity. This electricity is stored in the 48v 1000Ah battery array fitted in the plant room. It is used for office machines. Excess electricity is "dumped" into the Energymaster thermal store cylinder a large tank in the roof space.

Eight 85 watt BP 285 photovoltaic panels are fitted to the roof and use the sun's energy to feed further electricity to the batteries.

A Morso Cleanheat 9 kW wood-burning stove (to be fuelled by short rotation coppice willow grown on the B9 Energy site) heats the downstairs room.

It is also fitted with a back boiler, which heats water for the Energymaster thermal store cylinder.

A 90 litre Sunfamily RK-01 evacuated tube solar water heater manufactured by Nippon Electric Glass and situated on the roof, uses the sun to pre-heat the domestic hot water before sending it through the Energymaster thermal store cylinder to be further heated before coming out the taps.

The heating system uses the power created by the wind and wood. The Nu Heat wet under floor system passes through the Energymaster thermal store cylinder before circulating the building.

Costs

The total project cost was £300,000 at 1997 prices of which the European Regional Development Fund contributed £75,000 via the Energy Demonstration Scheme. The estimated payback period based on energy savings is 16.9 years.

Estimated annual savings

- 35,000 kWh of electricity
- 24.5 tonnes of carbon dioxide

Energy Demonstration Scheme

The nature of an Energy Demonstration Grant requires B9 Energy to provide guided tours of their HQ to interested parties. If you are interested in seeing this office, please contact us on (028) 2826 3900.