

Case study Bridestowe Village Hall, Solar thermal system



DARE

Devon Association for Renewable Energy



Introduction

The Village hall is located in Bridestowe near Okehampton, and this new build provides an ideal facility for a wide range of events for the surrounding community. The hot water and heating is provided by solar collectors and supplemented by an oil fired boiler. The hotwater is circulated around fan assisted radiators.

Project development

- At the start of the project it was decided that a design and build contractor would be appointed. To reduce costs and simplify the build an Austrian pre-fabricated timber frame building was imported and erected.
- The design for the heating system was considered and it was decided that it was necessary to reduce the cost of producing hot water and further to improve the building's 'green credentials'.
- Miller Pattison were asked to provide a specification and costings for a solar thermal system. They provided the basis of sizing on the design to raise 210 litres of water from 12 °C to 53°C. The system specification included frost and overheat protection by ratio of cylinder volume to collector area and incorporation of an expansion vessel with a pressure relief valve.
- Solar thermal system installed in Spring 2008

Costs and benefits

- The overall supply and installation cost £7463
- Bridestowe Village Hall is a registered charity and received £3,252 grant support from the Low Carbon Buildings Programme.
- The Heating system is relatively efficient and during the year 2008-2009 consumed £545 in oil.
- The Filsol flat plate collector carries a 10 year warranty
- A properly designed system can be expected to provide between 60% and 70% of a projects annual hot water requirement, and over 90% of the hot water requirement through the summer months.

How the system works

The illustration overleaf shows the principle of the solar thermal installations in conjunction with an auxiliary boiler providing supplementary heating for hotwater and heating. However on this project a conventional oil condensing boiler and fan assisted radiators were installed. A flat plate collector as used in this installation is slightly less efficient but is cheaper than evacuated tubes.

Technical details

Solar collectors

2 x 2m² single Filsol Stamax absorber

Output

1,760kWh per annum

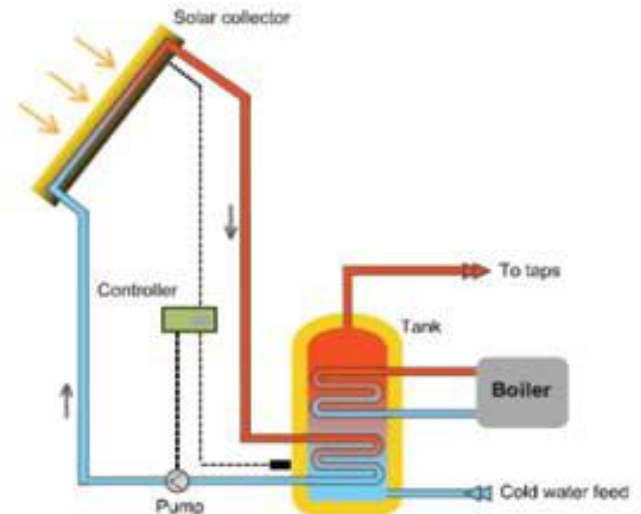
Installer Company

Miller Pattison

Wider benefits

Providing an energy efficient building reduces the running costs for the community. Installing renewable energy within a public building can promote other villages and the wider public to consider using this technology in new build or refurbishment projects.

The expected life of the Filsol collector is in excess of 25 years; this is based on installed collectors which have been in service for more than 25 years. The expected service life of the stainless steel absorber plate is a lifetime (70 years +).



Contact DARE

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Image Gallery

Twin coil cylinder



System controller

