

PROJECT CASE STUDY No. 10:
Fox Park Cottage, St Dominic, Saltash



CEP Lead officer and team	N/A
Location of project	Halton Quay, St Dominic, Saltash, PL12 6SL (Tamar estuary)
Project Stages	Derelict building bought 1985, Certificate of Lawful Use and Development obtained 1998, Planning permission granted July 1999, rebuilding began April 2003, PV operational since March 2004 Project Completed summer 2005
Project description	<p>Fox park eco-cottage is a re-build and extension of a 1920s market-gardener's corrugate-iron cottage in an AONB.</p> <p>Now a two-bedroom cottage on an outstandingly beautiful site with super-insulation, passive solar heating, a PV roof and solar water-heater. Its space-heating comes from a stove burning logs grown on the site.</p> <p>Roof-water provides a back-up supply for the bore-hole.</p> <p>Wherever possible materials were re-used. Only one skip of rubbish left the site.</p>
Partners	<p>Solar Century for PV roof</p> <p>Solar Twin for solar water heater</p>
Value of project / Funding & Grants received:	<p>Total rebuilding costs £125,000 including landscaping.</p> <p>DTI EST grant towards PV roof £9595</p> <p>Clear Skies grant towards solar water heating £500</p>
Measurable Outcomes	<p>PV roof consists of 134 SP-A Sunslates (12W siemens cell) with an output of 1.59 kWp (June 05 to June 06 output of 1152 kWh)</p> <p>Solar Twin solar water heater (2.5m x 1.3m), system has a PV powered pump. Peak output is</p>

	about 2 kWh and on test delivers 1000 kWh of energy as hot water annually
Wider Benefits of the scheme: (social, environmental, economic)	Renovation of vernacular local building in keeping with strict planning guidelines for Area of Outstanding Natural Beauty and retaining traditional wood-panelled interior. Low environmental impact design and construction on many parameters. Training of local craftsmen in sustainable building techniques. Increased awareness of renewable energy/sustainability in local council, parish council and the area.
Issues encountered	Difficulty of supply of environmentally friendly building materials e.g. fsc timber. Almost total lack of understanding & experience of environmental materials amongst local builders' merchants. Lack of experience in environmental construction of builders, plumber, electrician. Lack of experience of local planning authority in environmental issues (Caradon D C), unwillingness of Building Control to accept concept of embodied energy e.g. demanding unnecessary concrete slab floor to extension. Difficulty of deciding on options for construction when materials had to be brought long distances when we favoured local materials.
Key Lessons:	Constant need to compromise on what is achievable within the constraints of the available and affordable as opposed to the ideal. The difficulty of getting a true picture of the environmental costs/benefits of any particular material or technique. If you want maximum use from a solar water heater angle it for optimum efficiency in the winter (in summer there is an excess of heating in winter not enough). Aspects recommended as the theoretical best do not take this basic truth into account.
Further information	We used Solar Twin because of its simple design, cheap cost, and lack of embodied energy and parasitic energy use for pumping. The solar slates were an expensive option but they have the important advantage that from the River Tamar they are indistinguishable from ordinary slates and they occupy the entire roof not just panels, giving an aesthetic advantage. There are numerous other energy-saving features from CF downlights in the kitchen to the way the fridge draws cool air from the undercroft past its heat-exchanger.

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Compiled by: Michael L A Andrews (Researcher, designer, joint-owner)