

GO GREEN IN 2016

There are ways for everyone to improve the energy efficiency of their home. Follow our guide to find out where to make a start **Words** Jane Crittenden

UPDATED COTTAGE

For the extension and retrofit of this cottage, BBM Architects (01273 400 319; bbm-architects.co.uk) focused on energy reduction and used high levels of insulation. The new south-facing extension provides passive heating in winter while a *brise soleil* shelters the interior from hot summer sun. The matt-black photovoltaic system is integrated into the roof to soften its appearance.

Around 30 per cent of the UK's energy consumption and carbon emissions come from how we heat and use our homes, emphasising the need for more energy-efficient retrofits and design. Although the government's Green Deal has now been scrapped, there are still financial incentives. For starters, you'll pay only five per cent VAT on any renewables and insulation you

install, and the Feed-in Tariff and Renewable Heat Incentive (check out ofgem.gov.uk) are still in play. The industry is always improving products and technologies, giving you plenty of options – whether you're updating the fabric of your home, constructing an extension or taking on an entire self-building project. But don't be overwhelmed by the choice: even the smallest of energy-efficient changes can make a big difference. →

IN FOCUS



SUPER-INSULATED MODERN PROPERTY

This 155sqm zero-carbon Welsh home was built by architects Steven Harris and Catherine Roberts (01873 853 238; crsharchitects.co.uk) for £175,000. Insulated concrete blockwork supports a concrete plank first floor. This thermal mass absorbs solar energy and releases heat back into the house. A solar thermal array and wood-burning stove with a back boiler provide hot water and heating; photovoltaic panels deliver electricity.



OAK-FRAMED FAMILY RETREAT

This three-bedroom detached house, designed by Welsh Oak Frame (01686 688 000; welshoakframe.com), is so thermally efficient that the owners don't need to use the heating in winter. The eco-friendly post and beam green-oak frame is insulated with 15cm of Kingspan in the loft, the walls, under the rafters and between joists to prevent cold bridging. The project cost around £250,000.

Renewables

A solar photovoltaic system (4kWp, £6,000-£8,000) can be boosted by using a power diverter, from £395 (01472 398 838; immersun.co.uk), wherein surplus energy is used to heat a water cylinder or underfloor heating. Battery storage is expected to become a common element of a solar PV installation: in 2015, Tesla Motors launched Powerwall, a \$3,500 home battery pack that can store 10kWh of power. The use of solar thermals (around £2,500-£4,000) could offer savings of £100-£200 a year in a medium-sized house. An air source heat pump (£7,000-£11,000*) or ground source heat pump (£11,000-£15,000*) are alternative heating systems, as is a biomass boiler (15kWp, £9,000-£21,000*) that burns wood pellets or briquettes. Bulk deliveries blow pellets into your store (£175-£300/tonne) or come in bags on pallets (£222 for 70x12.5kg bags); try Forever Fuels (01628 509 690; forever-fuels.com). As part of the Energy Related Products Directive, heat pumps, boilers and water heaters now come with an energy-performance certificate. **GD**
*provided by the Energy Saving Trust (energysavingtrust.co.uk)