



Innovation: designing for a sustainable future

Designing an eco-village.

Narrator

This is BedZED, the Beddington Zero Fossil Energy Development.

It's an environmentally friendly, energy efficient mix of housing, work space, and community facilities near Croydon in Surrey.

Currently it's the UK's largest eco-village.

Bill Dunster

What we wanted to show is that you could develop green lifestyles that were actually more convenient, more desirable than carrying on with the typical suburban status quo.

So what we've done is we've tried to take a small piece of suburbia and develop almost like a model village where people can live and work and play and actually have a higher quality of life at the same time as drastically reducing their environmental impact.

Narrator

To achieve this, BedZED's designers have had to consider all aspects relating to sustainability – from reclaimed and renewable construction materials to minimum energy use.

Bill Dunster

The homes have been designed as sunny caves. They're very thermally massive, they're constructed out of dense heavyweight concrete blocks, concrete floors and they all face south. So we're getting about 30 percent of our annual space heating requirements through passive solar gain.

We're then able to store that passive solar gain from a very warm winter day to a colder winter day by having about between a week and a months worth of thermal storage embodied in the structure

Narrator

Good draught proofing also helps to reduce heat losses. Heat exchangers in the roof cowlings use heat from outgoing air to warm the fresh air going into the buildings, again reducing energy requirements. Overall, the thermal requirements of the houses in winter is only about a tenth of a traditional British home.

A combined heat and power plant makes up the thermal energy deficit.

Woodchip waste that would otherwise go to landfill is the basis of the fuel..

The CHP plant also generates some of the electricity used on the site. The rest comes from photovoltaic panels.

Bill Dunster

We've integrated solar electric panels in the window systems and also in a roof light system, and then there's another set of photovoltaics placed on the roof proper.

Narrator

Installing the most efficient energy appliances reduces electricity demand, and other environmentally benign measures include recycling facilities in each eco-kitchen.

Food miles are minimised by an on-site local farmers shop, and the roof gardens can act as vegetable plots as well as thermal insulation.

Bill Dunster

Most green initiatives are actually asking people to deny themselves something, you have to save energy, you have to change your lifestyle, you have to change your diet. What we wanted to show was actually you could achieve a higher quality of life at the same time as reducing dramatically reducing environmental impacts.

One of the factors we've tried to address is this concept of solar urbanism, which is designing new city blocks around the need to maximise renewable energy at the same as providing a good streetscape and something that can fit into a modern city.

Many town planners have been rejecting these ideas because they couldn't see how classical urban design concepts could be reconciled with the need for taking on board renewable energy and sustainable lifestyle concepts.