

# Green Construction



**Lowering the impact that our homes have on the environment doesn't mean we all have to move into a cave. It is quite possible to take small and simple steps in our existing homes to reduce our energy consumption and lower our carbon footprint.**

## **Insulation, insulation, insulation**

In general about 95% of energy associated with a building occurs during the lifetime of its use with the balance accounted for by the construction materials and methods used to build it in the first place. So whilst it is important to consider the 'embedded energy' in the materials you might be using it is far more important to ensure that the energy that will be consumed during the lifetime of a building is reduced as much as possible.

The best, and cheapest, way to address this is to insulate in order to minimise the energy we have to use in order to stay comfortable in cold weather. Install at least 250mm of loft insulation and consider cavity wall insulation too, if you have a suitable property. Older properties without cavity walls are more difficult to deal with but it is not impossible and there are some options available – see the Links section below for more details on this.

There are alternative insulation materials available now that are just as good as the itchy yellow fibreglass rolls we have all become familiar with. These include sheeps' wool, flax, hemp and even recycled newspaper.

Adding double glazing, if you don't already have it, is a more expensive option but simply draught-proofing windows and doors can make a big difference too.

## **Water, water everywhere**

Conserving water hardly seems something we need to worry about, given the weather we often experience in this country, but each 100 litres of tap water we consume contains about 1p worth of energy. Not much? Well, in the UK, domestic water consumption is around 9 billion litres every day so that means that the water companies are using over £300 million of energy a year just to provide us with clean tap water in our homes.

Anything we can do to reduce the amount of mains water we consume will help.

Installing a system to collect rainwater from a down-pipe into a storage tank can be very simple. The stored rainwater can be used for watering plants, car-washing and cleaning windows. It is even possible to install a small pump and pipework to supply rainwater to flush your toilet.

## **What does it say on the tin?**

Eco-friendly paints and varnishes are now available that are made from plant or mineral ingredients rather than petrochemicals. These contain low or zero Volatile Organic Compounds (VOCs) which are chemicals usually found in paints and that contribute to atmospheric pollution. Apart from being better for the environment in general, the use of low VOC paints can also eliminate the allergic reactions that some people suffer from whenever they are in a newly painted room.

## **I can see for miles and miles**

Just as with food, you should try to source building materials as locally to you as possible so as to reduce the energy used to transport them.

## It doesn't have to be a concrete jungle out there

If you are in the position of constructing a brand new house from scratch then there are plenty of exciting options to consider that will enable you to build a low-energy home. See the Links section below to discover more details of Earthships, roundhouses, rammed earth and straw bale building methods.

## Standards

There are many standards that you can use to guide your selection of materials and methods in green construction. Here is a brief summary of the most important ones. It is to be expected that these various standards will coalesce into a single comprehensive set of guidelines over the coming few years. You can get more details from their websites.

## Building regulations

All building work in the UK must meet the appropriate standards as laid down in the relevant government Building Regulations Approved Documents. Each document covers an aspect of construction work ranging from foundations to electrical work. You can download a copy of all of the documents from:

### England & Wales

[www.planningportal.gov.uk/england/professionals/en/1115314110382.html](http://www.planningportal.gov.uk/england/professionals/en/1115314110382.html)

### Scotland

[www.sbsa.gov.uk](http://www.sbsa.gov.uk)

### Northern Ireland

[www.dfpni.gov.uk/index/law-and-regulation/building-regulations.htm](http://www.dfpni.gov.uk/index/law-and-regulation/building-regulations.htm)

## Code for Sustainable Homes

The UK government has recently introduced this Code as a national standard for the sustainable design and construction of new homes. It is a voluntary rating system that is intended to show the level of sustainability of new homes and has been based on the BREEAM Ecohome standard. It is expected to become a compulsory standard in the near future.

[www.planningportal.gov.uk/england/professionals/en/1115314116927.html](http://www.planningportal.gov.uk/england/professionals/en/1115314116927.html)

## BREEAM

The Building Research Establishment Environmental Assessment Method provides a set of tools and methods for assessing the environmental performance of any new or existing building.

[www.breeam.org](http://www.breeam.org)

## AECB

The Association for Environment Conscious Building have developed a draft set of design specifications and construction checklists for advanced housing energy standards.

[www.aecb.net/energystandards.php](http://www.aecb.net/energystandards.php)

## Passivhaus

The Passivhaus standard has been widely used across Europe, having originated in Germany in the 1990s. A house built to this standard would use only about 10–25% of the energy required by a house built to current UK Building Regulations.

[www.passivhaus.org.uk](http://www.passivhaus.org.uk)

## Other Links

Energy Saving Trust

[www.energysavingtrust.org.uk/home\\_improvements](http://www.energysavingtrust.org.uk/home_improvements)

Practical refurbishment of solid-walled houses

[www.energysavingtrust.org.uk/download.cfm?p=1&pid=878](http://www.energysavingtrust.org.uk/download.cfm?p=1&pid=878)

Guides to green building materials and suppliers

[www.greenspec.co.uk](http://www.greenspec.co.uk)

[www.newbuilder.co.uk](http://www.newbuilder.co.uk)

Sheeps' wool Insulation

[www.secondnatureuk.com](http://www.secondnatureuk.com)

Earthships

[www.lowcarbon.co.uk/home](http://www.lowcarbon.co.uk/home)

Rammed earth construction

[www.lowimpact.org/factsheet\\_rammed\\_earth\\_building.htm](http://www.lowimpact.org/factsheet_rammed_earth_building.htm)

Roundhouses

[www.simondale.net/house](http://www.simondale.net/house)

[www.gallica.co.uk/celts/build.htm](http://www.gallica.co.uk/celts/build.htm)

Straw bale building

[www.strawbale-building.co.uk](http://www.strawbale-building.co.uk)

Rain harvesting systems

[www.rainharvesting.co.uk](http://www.rainharvesting.co.uk)