

Eco-renovation fact sheet

The Ecology Building Society recognises that upgrading existing properties to make them as energy efficient as possible is an important part of reducing the UK's CO₂ (carbon dioxide) emissions. In addition, we need to maintain the building fabric of our homes both internally and externally, while minimising the environmental impact of any refurbishment work undertaken. If you intend to build an extension in addition to renovating your property, you should also read the *Eco-new build* and *Sources of help and information* fact sheets.

Reduce energy and CO₂ emissions in use

To heat and light your home and power your appliances you will produce CO₂. It is important to minimise these emissions. You can reduce the energy consumption of your home by improving the building fabric, eliminating uncontrolled ventilation (draughts) and using energy efficient lights and appliances. CO₂ emissions can be reduced further by careful choice of heating system. If your house is heated by electricity, replace electric heaters with a central heating system fed by a condensing boiler (mains gas, LPG, oil) or high efficiency wood burning boiler. Using electricity to heat homes and hot water has a very high environmental impact. Almost twice as much CO₂ is produced per kWh of electricity as opposed to a kWh of heat from a gas condensing boiler.

- Replace old boilers with an A-rated condensing boiler
- Upgrade controls for the boiler and hot water cylinder, and fit thermostatic radiator valves
- Insulate hot water cylinder and pipe work, especially the primary pipe work between the boiler and cylinder
- Install reflective foil behind radiators that are on outside walls
- Draught proof doors, windows and unsealed openings such as disused chimneys. Introduce controlled ventilation to prevent condensation problems
- Upgrade loft insulation. 200mm of insulation (recycled cellulose, sheep's wool, mineral fibre) is the recommended minimum
- Insulate and draught proof suspended wooden floors. Ensure floor void is well ventilated
- Insulate external walls. Grants may be available for cavity wall insulation. Check with your local council
- Upgrade single glazed windows to high performing timber framed double or triple glazed windows with soft coat low-e glass with argon fill, or install secondary glazing

A condition of any mortgage offer we make will be that you do not install any uPVC window frames or doors.

- Install low energy light bulbs
- Buy A-rated washing machines, fridge freezers etc (or A+ if available)

- Sign up to a green electricity supplier to stimulate the growth of renewables in the electricity industry. However, using green electricity does not offset the CO₂ emissions from electric space heaters
- Consider installing a solar water heating system, photovoltaics and/or a wind turbine. Grants are available via the Low Carbon Buildings programme for the installation of some zero or low carbon energy systems. However do not do this at the expense of basic energy efficiency measures

Conserve water and reduce storm water run off

Demand for water in the UK is rising steadily. The average person in the UK uses 140 litres of water a day. This rising demand is a problem, especially during times of low rainfall. At the same time flooding is increasing, both from building on flood plains but also because of the increased rainfall. A sustainable water strategy addresses both these issues.

- Fit cistern displacement devices into existing WC cisterns (available free from your local water supplier)
- Fit flush reduction devices to existing WCs
- When replacing WCs consider models with an effective flush of 4.5L or less
- Fit flow regulators on basin taps and showers if your water supply is fed from the mains. However if you have an electric shower never fit anything to lessen the flow as this can cause scalding
- Collect rainwater for use in the garden and construct a garden that requires minimum water with drought resistant species and plenty of organic mulches. This reduces your water demand and also reduces the strain on surface water drains during storms

Reduce pollution and resource depletion in the external environment

Every material you use will have had some sort of environmental impact during its manufacture, some more than others. Use local, renewable or natural materials. When looking at a particular material choice always ask, “Does its unique positive function over-ride its environmental impact?”

- Choose only zero ozone depleting materials (Zero ODP)
- Consider materials that are natural and from a renewable resource
- Choose materials that have a low embodied energy and are not polluting in their manufacture, use or disposal
- Use locally grown or Forestry Stewardship Council (FSC) accredited timber
- Use durable timber species externally to reduce the amount of preservatives that are needed, e.g. heartwood of English oak, sweet chestnut and European larch
- Use materials or products that are reclaimed or recycled
- Choose durable products that have a long life span and are low maintenance

- Avoid PVC
- Source materials from manufacturers with a proven environmental management record who can readily supply environmental and health data

Reduce pollution in the internal environment

The internal environment in many buildings is often more polluted than the external environment. Allergies such as asthma are on the increase, as are cases of multiple chemical sensitivity. Some materials, for example, many paints and carpets, give off harmful gases once in the house.

- Use hard flooring and avoid carpets/coverings that will harbour dust mites and chemicals
- Use linoleum instead of vinyl flooring
- Use low emission paints and finishes
- There is generally no need to treat internal timbers if basic good design principles are followed. Establish the cause of insect or rot attack and rectify using environmental controls where possible (adjust temperature or ventilation to make atmosphere undesirable to fungi and pests)
- Avoid chemical damp proofing where possible. Most damp problems can be solved by repairing defects in the building structure, e.g. clearing gutters and drains, unblocking air bricks, repointing
- Consider reducing the effect of electromagnetic fields when re-wiring

Biodiversity

Gardens can be a haven for wildlife. The following will improve the natural habitat.

- Retain hedges and protect from building work
- Create wild areas using native trees, shrubs and wildflowers
- Encourage wildlife by installing bird/bat boxes
- Build dry stone walls
- Put in a pond

This fact sheet was written by the **Association for Environment Conscious Building (AECB)**.



Established in 1989 the AECB is a non profit making organisation that exists to encourage greater environmental awareness within the UK construction industry. It promotes the use of products that are safe, healthy and sustainable. Its diverse membership encompasses all aspects of building design and construction as well as individuals with a keen interest in environmental issues. Visit www.aecb.net for details of how to join, other useful websites to back up this fact sheet, and a recommended reading list.

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