

Complete Guide to Renovating a House

PART NINE: ECO-VATION

Old houses are leaky and expensive to run — now is the time to do something about it, orders **Natasha Brinsmead**

THE KEY PRINCIPLES

It is somewhat of a given that old houses and eco-friendly do not generally go together. But just because you are the proud owner of a period property, does not mean you have to resign yourself to freezing winters, huge heating bills and a shameful energy rating — there are plenty of measures you can take to make your home more energy efficient.

The key is to consider your approach to battling the two main issues: minimising the amount of heat your home requires to keep you comfortable (heat demand) and minimising the cost of producing the heat that it does require. One can't really work without the other, and the key to success is to tackle them both sequentially — reducing heat demand first, then looking at cheap ways of generating that heat.

The good news is that the Government is very keen for you, as the owner of an old home, to improve its energy efficiency and through the energy company (and inevitably customer-funded) incentives such as the Green Deal and, in particular, the Renewable Heat Incentive, there has never been a better time to finally get the problem sorted.



Leaky?

Period doors and windows are hugely appealing features of old houses, but renovators will need to address draught-proofing as a relatively easy way of minimising heat loss. Replacing putty, adding draught strips and repairing frames all help

DRAUGHT-PROOFING

There is no question that original period windows look fantastic, but they are also notoriously draughty. If you have the original glass, it is likely to be very thin compared to today's standards. Frames may have warped, letting cold air in, too. There are plenty of ways to overcome these problems without replacing them with inappropriately modern windows.

If you have sash windows, get a specialist in who will be able to remove your sashes and fit them with recessed brush strips. Ventrolla (ventrolla.co.uk) offer a complete overhaul service for damaged sash windows. They will also be able

to replace any missing putty and could even replace thin glass. For other types of timber windows, it is simple to fit draught strips — either brush or self-adhesive rubber strips — on a DIY basis. Use an acrylic sealant or decorator's caulk to fill gaps around window frames — and never underestimate the effectiveness of thick curtains.

There is a range of draught excluders for doors, plus complete draught-proofing sets for both internal and external doors. The simplest solution is to use a self-adhesive foam strip. For external doors use a vinyl-coated polyurethane, rubber or PVC foam strip, or just a polyurethane foam strip for internal.

If the gaps in your door are irregular, a V-shaped strip will be best. Alternatively, use a sprung strip — metal or plastic — pinned to the rebates of the frame. ▶

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According to the Energy Saving Trust, full draught-proofing can save you £55 per year. Draught-free homes are comfortable at lower temperatures, which could save you another £65 per year

INSULATING YOUR LOFT AND WALLS

If your loft is uninsulated, then address this job as a priority — it's one of the best ways to keep your home warm. Providing you have no condensation or damp issues and your loft is accessible, this should be a job you can carry out on a DIY basis. Most people choose to insulate using insulation 'quilts' made from glass, mineral wool or natural wool — a depth of 270mm should be aimed for. If your loft is hard to access, you may need to go for blown insulation — mineral wool or cellulose — which is a job best left to the professionals.

Quilts should be laid between the joists in the loft, with another layer at right angles to the joists. If you wish to use the loft for storage, you will need to lay floorboards backed with insulation over those between the joists. Flat roofs can also be insulated. Renewing the waterproof covering provides the ideal time to add insulation externally, using boarding backed with insulative materials. Internally, insulation-backed boards can again be installed.

Finally, ensure the now cooler air in the loft does not cause draughts by buying an insulated loft hatch and placing draught-excluding strips around the edges.

Eco Insulation

Check out our guide to using breathable insulation materials on page 119. Breathable insulation materials ensure that condensation is not trapped within the house



Internal wall insulation is the cheaper option...

WALLS

When it comes to walls, if your house was built prior to 1920, it is likely to have solid walls — whereas most houses constructed post-1920 will have cavity walls. Insulating cavity walls will cost around £500 and can save you around £115 a year on fuel bills, according to the Energy Saving Trust (EST), as well as reduce condensation. As long as your brickwork is in good condition and the cavity between your walls is at least 50mm wide, then insulating them should not be a problem. Installing insulation into cavity walls is the remit of a qualified installer — for whom it should be a simple and not particularly messy job, typically taking no longer than a couple of hours.

If you have solid walls, insulating them will save you around £400 a year on your fuel bills. This is a job best done when you are replastering.

Solid walls can be insulated internally or externally. Internal wall insulation is the cheaper option, although it will reduce room size a little (the thickness of the insulation is usually around 100mm). It can be applied in two ways. The first is using rigid insulation boards — plasterboard backed with rigid insulation is fitted to the wall (it should be at least 60mm thick). The second involves the construction of a stud wall, whereby a timber or metal studwork frame is attached to the wall and filled with insulation before being plastered.

To increase your home's ability to hold onto heat even more, the new stud walls can be covered over with rigid insulation boards before plastering. External insulation may require planning permission, but protects the brickwork, reduces condensation and helps prevent damp. A layer of insulation is fixed to the walls then covered with render or cladding. Areas around windows and doors must also be insulated to prevent condensation. ▶



IMAGES: SHUTTERSTOCK

LOOK ONLINE

There are plenty of websites dedicated to helping owners of old homes improve their efficiency. Start with energysavingtrust.org.uk; also, check out yougen.co.uk and the eco section of our own website, homebuilding.co.uk



GREEN DEAL FAQS

Could the Green Deal help you? Our eco expert Tim Pullen (weatherworks.co.uk) answers your questions

Is it possible to buy two types of technology with this loan, or is it limited to one form of energy-saving technology?

The loan, which is limited to a maximum of £10,000, is not limited to a single technology. It is available for all of those things that the assessor considers the property needs.

Does the Green Deal apply in Scotland?

The recently announced Green Deal only applies to England and Wales, however Scotland will soon be operating its own Green Deal scheme, which is due to launch towards the end of February 2013.

If we wanted to update our boiler, for instance, what would happen when we moved house? Would we still need to repay the loan even if we were no longer living in the property?

The Green Deal loan attributes to the property, not the people in it. So if you move, the loan transfers to the new occupier (similarly, any Feed-in Tariffs or Renewable Heat Incentive returns pass to the new occupier). There is an argument that this may impact on the saleability of the property, as a prospective buyer may not want to take on the repayment of a loan.

Where can we find out more?

The Department of Energy and Climate Change on the gov.uk website provides further answers on specific issues on the Green Deal. You could also try energysavingtrust.org.uk for further information.

THE GREEN DEAL

The most recent carbon-saving incentive outlined by the Government, the Green Deal, aims to provide funding to reduce domestic energy consumption with no upfront costs to the homeowner. The cost will instead be repaid, with interest, through energy bills over a period of time. But how does the Green Deal work in the real world?

Those taking advantage of the Green Deal will be charged interest on the loan at 6.96 per cent. The maximum loan is £10,000 per house and is repaid through the energy bill over a period of up to 25 years and is tied to the house rather than the occupant, so if the homeowner chooses to move, repayment of the loan transfers to the next occupant.

As this is a Government initiative, there are plenty of rules:

HOW IT WORKS

1. The expected savings must be equal to or greater than the costs attached to the bill. This is known as 'the golden rule'. For example, if the expected saving is, say, £100 per year, the annual repayment of the loan cannot be more than £100.
2. The measures must be approved and the claimed savings must be

those accredited through this approval process.

3. The measures installed must have been recommended by an accredited, objective adviser who has carried out an assessment.

4. The measures must be installed by an accredited installer.

5. The Green Deal provider must give advice within the terms of the Consumer Credit Act and take account of the individual circumstances of the applicant.

6. The Green Deal provider must have consent from the relevant parties — including the consent of the bill payer.

7. The presence of a Green Deal must be properly disclosed to subsequent owners/bill payers.

8. Energy suppliers must collect the Green Deal charge within the existing regulatory safeguards for collecting energy bill payments — including protections for vulnerable consumers.

There is a limit of 25 years for repayment of the loan (the typical mortgage length) which means that for the golden rule to apply to projects using the full £10,000 limit, there needs to be a minimum saving of £400 per year. ▶

know this

There is a limit of £10,000 for homeowners to cover the following measures:

- Solid and cavity wall insulation
- Loft insulation
- Double glazing
- Door insulation
- Smart meters
- Solar power (thermal and photovoltaic)
- Air- and ground-source heat pumps
- Biomass boilers

The Green Deal loan attributes to the property, not the people in it





UPDATE YOUR HEAT SOURCES

Upgrading your old boiler and heating sources (such as old radiators) is one of the best way to cut heating bills. If your home has the old-style, seam-top, single-pressed panel radiators, it will be worthwhile upgrading them to a more modern radiator with fins. These give a greater surface area and greater heat output. Radiators should be placed

against internal walls and not covered by curtains. If a radiator is fitted to an external wall, put reflective insulation panels behind.

Swapping an old boiler for a new A-rated and high-efficiency, condensing boiler will make a big difference to your heating bills. This type of

boiler recovers as much waste heat as possible — heat that is wasted from the flue of a conventional boiler.

High-efficiency condensing boilers convert at least 86 per cent of their fuel into heat, as opposed to around 65 per cent for old G-rated boilers. The scrappage scheme that was being offered is now closed in England, but is still available in Wales. Some companies, however, are continuing to offer reductions on new boiler installations.

More information on these discounts can be found at boilerscrappagescheme.co.uk ■

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The Energy Saving Trust estimates that replacing an old G-rated boiler with a new A-rated model will save you **£310 a year. A replacement including labour should cost around £2,000**

QUICK WINS

- Only buy energy-efficient appliances
- Buy low-flush toilets
- Reduce the temperature you're heating your hot water to — usually controlled on your boiler or cylinder
- Choose 'click' taps (these operate on a low flow, unless clicked onto a higher flow) for the kitchen, and aerated taps for the bathroom
- Insulate heating pipes
- Consider extractor fans with heat recovery