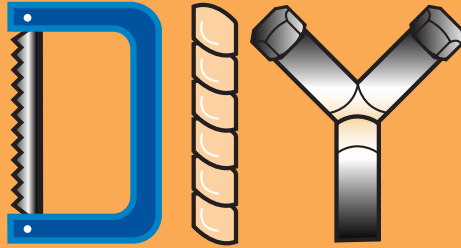


The



Guide to Energy Efficiency



IT'S CLEVER STUFF

FREEPHONE 0800 512012

T H E G U I D E

Many Energy Efficiency measures are easy to install and you can save much more if you haven't paid out for a contractor. This booklet describes how to carry out some of the more simple DIY jobs that will make your home more comfortable and cheaper to run.

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The DIY Energy Saving Initiative is a partnership between these Local Authorities, led by Havant Borough Council and Solent Energy Efficiency Advice Centre. The initiative is being grant aided by the Energy Saving Trust.



DRAUGHT PROOFING

Draught proofing is one of the most inexpensive but most effective ways of making your home more energy efficient and more comfortable. As much as 20% of heat can be lost through ill-fitting doors and windows.

The purpose of draught proofing is NOT to exclude fresh air from your home but to control it and ensure that you are comfortable.

Draught Proofing
will save you
as much as
£15 to £25
year after year

Safety First!

Your home needs fresh air to keep condensation at bay and to ensure the safe operation of fuel burning appliances. Therefore:

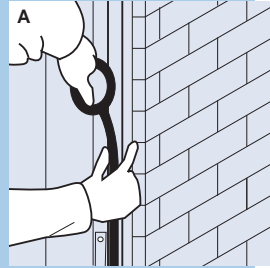
- Check that all air bricks are unblocked and that flues/ chimneys are clear
- Omit draught proofing from one window in rooms containing boilers, gas fires or open fires. This is to ensure that there is enough air for the fuel to burn safely.
- If you use bottled-gas or paraffin heaters, omit draught proofing from all the windows in the house.
- Omit draught proofing from kitchens, bathrooms and any rooms that suffer from condensation or mould growth.

Preparation

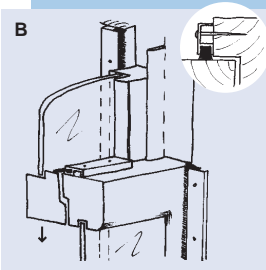
Measure the perimeter of the doors and windows to work out the quantity of materials needed. A bottom door brush and letter box cover will be needed for all appropriate outside doors. Look out for products that conform to British Standard BS7386. Clean and dry all the window and door rebates before applying any adhesive product.

Work sequence

1 For draught proofing doors and windows there is a very wide choice of materials. The cheaper option for wooden casement doors and windows will be to use a self-adhesive foam strip which sticks to the rebate and compresses to eliminate draughts when closed (see pic. A)

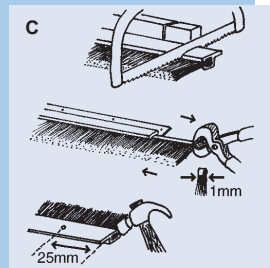


2 Draught proofing made of metal or plastic strips with a brush or wiper seal down one side can also be used. Although more expensive than self adhesive foam they will last a lot longer. The material needs to be cut to length, placed on the frame and pushed against the opening section of the door or window. Then nail the strip in place. Always have pins within 25mm of the end of a draught strip. (see pic. B)

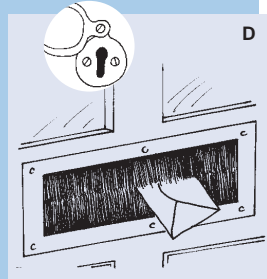


2

3 The bottom of the outside doors will need draught proofing too. A bottom door brush should be cut to equal the door width, less around 5mm (quarter of an inch). Position the carrier and check that it doesn't hit the door frame as you open the door. If it does hit the door, cut it shorter. You will then need to close both ends of the carrier to stop the brush slipping out (see pic. C). Put the brush in place so the seal rests in place on the floor covering and fix in place.



4 Fit a letterbox cover to the inside front door making sure that letters can still pass through easily. Fit a key hole cover too (See pic. D)



LOFT INSULATION

Installing adequate loft insulation will save you as much as £35 to £50 year after year

By modern building standards loft insulation should be 200mm (8") thick, so if yours is 100mm (4") or less it will need a top up. Heat will also be lost through the joists, so remember to lay the top 100mm (4") of insulation across them.

Loft insulation is an easy and cost effective energy efficiency measure you can take.

Inadequate loft insulation could quite literally be sending your heating bills through the roof.

Preparation

1 Give yourself plenty of room to work safely. If possible empty your loft space completely.

2 Measure:

- a. The space between the joists (to determine the width of quilt needed);
- b. The depth of the joists. The depth of the joists is important because if these are 100mm (4"), for example, to lay 200mm (8") of insulation you may have to build up the joists and create a boarded area to retain access to all of the tanks in the loft.
- c. The length and width of your loft - multiply these together to get the approximate area you need to cover.
- d. Measure the size of the loft hatch to ensure that you will be able to get the packs of insulation through it.

Safety First!

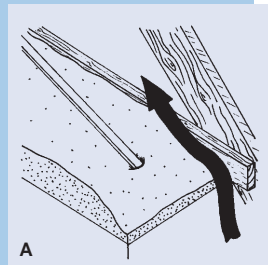
- Ensure that you have adequate lighting so that you can work safely in the loft.
- Always use crawling boards when working in the loft and never step on the ceiling between joists.
- Identify potential hazards (electric cables, loose boards, etc.). Check that the loft is ventilated from spaces at the eaves or from ventilators in the roof itself. If not, then this has to be rectified before the loft is insulated or you may get condensation damage in your loft.
- Mineral wool fibres can irritate exposed skin so cover up. Wear gloves (rubber ones are fine), a dust-proof face mask and goggles (available from DIY stores). Squeezing the bags of insulation through a small loft-hatch releases fibres, so wear protective clothing, a mask and goggles if you have to do this.
- Never tear the quilt as this releases more fibres. It is best to use a knife to cut it, but be careful not to cut wires by accident. Don't use a knife with a metal handle.

4

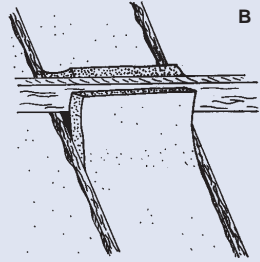
3 Look out for products conforming to British Standard BS5803.

Work Sequence.

1 (See pic. A) Lay the insulation starting in the eaves at the corner furthest from the loft hatch. **DO NOT** tuck the quilt right into the eaves but stop short so that there is at least a 50mm (2") air gap. Gently press the quilt down to stop air movement below the quilt.

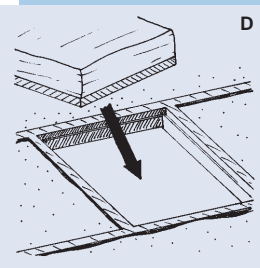
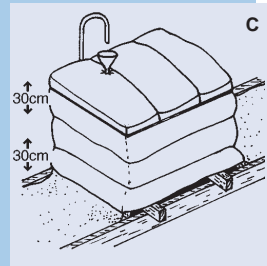


2 (See pic. B) Where cables cross the joists, cut the quilt with a knife and butt the two ends together under the obstruction. Wherever possible position the electrical cables above the insulation but be careful not to force cables out of the way.



3 (See pic. C) Do not insulate under the cold water tank - lead the quilt up the side of the tank and lap the tank jacket over the quilt ends.

This is to allow warmth from your home to reach the tank and thus prevent it from freezing. Where extractor fans or recessed lights are fitted through the ceiling, protruding into the loft space, trim the quilt around the fitting leaving a gap of 150mm (6") all round.



4 (See pic. D) Insulate the hatch cover with either rigid polystyrene or a piece of quilt enclosed in polythene (the quilt wrapping will do). Either of these can be held in place with broad headed nails. Draught proof the loft hatch using a compression seal as described in the draught proofing section.

5 Once the loft is insulated it will be colder than before (as it will receive less heat from your home) so you must insulate all pipes and tanks in the loft to avoid them freezing. Follow the instructions for the lagging of hot

water pipes found later in this Guide. If insulating with pre-formed foam is difficult, another method is to wrap a section of loft insulation around the pipe(s). The quilt must be securely tied at both ends and in the middle where necessary.

6 (See pic. C) For the cold water tank, ready-made jackets of mineral fibre quilt enclosed in polythene are available. Or use loft quilt wrapped in polythene or rigid polystyrene slabs. If the tank has no lid one can be made out of polystyrene. Otherwise buy one and insulate it along with the rest of the tank. Use broad tapes to tie the insulation in place - thin cord may cut through the insulation.

If you are fitting a ready-made jacket, place the hinge side away from the inlet pipe. Lay the jacket over the tank so that the sides are fully covered and secure in place with tapes as shown. Make sure that there are no loose fibres.

Grants

Households in receipt of state benefit may be eligible for a government grant which can help cover the cost of making your home more energy efficient. For further information ring free on 0800 512 012.

LAGGING THE HOT WATER CYLINDER

Lagging the hot cylinder is one of the easiest ways to save money in the home. The insulation on the hot water cylinder should be at least 80mm (3") thick and be in good condition.

Insulating your hot water cylinder will save you as much as £10 to £20 year after year

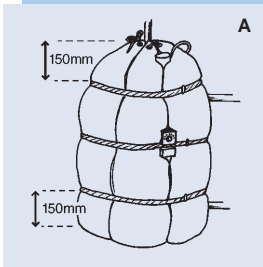
Preparation

1. Safety First!

Turn off the system and allow the cylinder and pipes to cool before you carry out the work. An old jacket can be left on and the new one placed over the top.

2 Measure your hot water cylinder and buy a jacket the correct size. Look for products that conform to British Standard BS5615.

Work Sequence



1 Tie the tops of the jacket segments tightly around the pipe at the top of the cylinder and place them evenly around so that the cylinder is totally covered. Pipes from the cylinder and any thermostat or immersion heads should be between segments. Elsewhere the segments should overlap slightly. Do not cover electric cables.

2 Fix the jacket in place with the bands provided as shown, (see pic. A) making sure that the fixing straps do not compress the insulation too much as this will reduce its insulating qualities. Check that there isn't a gap of more than 20mm ($\frac{3}{4}$ ") from the bottom of the jacket to the bottom of the cylinder. The cupboard will still be warm enough to air clothes after the cylinder and pipes have been lagged.

LAGGING HOT WATER PIPES

This saves energy by reducing heat loss and can easily be done at the same time as insulating your hot water cylinder. It also saves water as you don't have to have the hot tap on for so long before the water runs hot.

Preparation

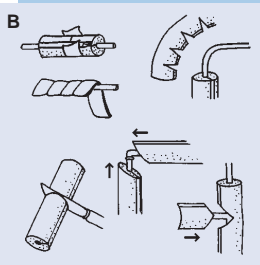
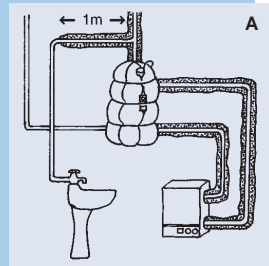
1. Safety First!

Turn off the system and allow the pipes to cool before you carry out the work.

2 Remove any old or damaged lagging.

3 WHERE to insulate: (See pic. A)

- Between the boiler and the hot water cylinder
- All hot water pipes, especially the first 1m (3') length of hot water pipe from the hot water cylinder towards the taps.
- Any hot or cold water pipes in the loft or other cold part of the house e.g. under the floor.



4 Measure the length of pipes to be covered. There are various kinds of insulation available. (See pic. B) The most convenient kind is pre-formed foam tubes. 20-25mm (1") is the minimum thickness you should install. If it is not practical to use pre-formed foam of this

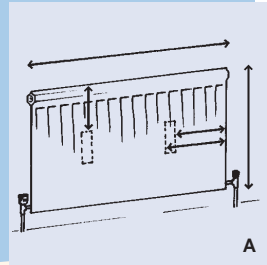
thickness because of awkward positions of pipes, loft insulation material can be used. You will need suitable tape to seal the splits and to join sections; some systems use purpose made clips. You can buy pre-cut packs for use around valves etc.

Work Sequence

- 1 Apply the insulation to the pipes. Try to avoid leaving small gaps where pipes are fixed to joists in the loft or pass through walls. Be particularly careful at junctions and bends.
- 2 If using foam tubes seal the split with suitable tape or clips.

REFLECTIVE RADIATOR FOIL

This is like a sheet of aluminium foil, often with a foam backing, placed behind a radiator. It reflects heat into the room away from outside walls. It is particularly effective for solid walled houses and to reduce heat loss behind curtains.

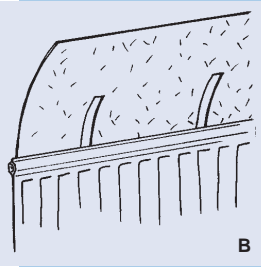


Safety First!

Turn off the system and allow the radiators to cool before you carry out the work.

Work Sequence

- 1 (See pic. A) Measure the areas of radiators on external walls and the positions of the brackets holding them.



2 Cut the radiator foil to fit behind the radiator so that it sits over the radiator brackets. Pre-cut reflectors are available.

3 (See pic. B) Fit the reflector behind the radiator, fixing it to the wall with double sided sticky pads or heavy duty fungicidal wallpaper paste. Use a wooden batten to smooth the reflector against the wall.

SHELVES ABOVE RADIATORS

Placing a shelf above a radiator works well in conjunction with reflective foil to help create warm currents of air inside a room.

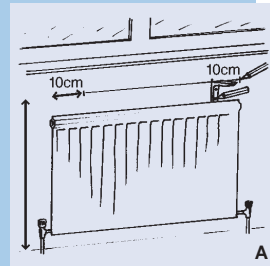
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Safety First!

Be sure to check for hidden pipes and electrical cables before you begin drilling into any walls.

Preparation

You must be careful to use a material that will not warp or discolour with the heat from the radiator. Commercially produced shelves are available that are designed to withstand the heat.



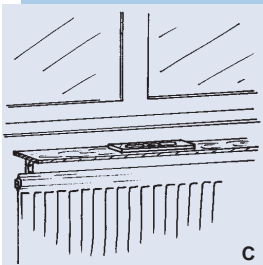
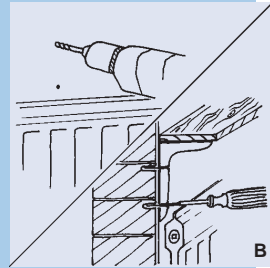
Work Sequence

1 (See pic. A) Measure the length of the radiator and cut

the shelving material (about 100-150mm (4-6") wide) to size.

2 (See pic. A) Measure up from the floor to about 100mm (4") above the top of the radiator at each end and draw a horizontal pencil line between the two marks. This marks the position of the base of the shelf. Mark about 100mm (4") in from each end.

3 Hold one bracket in place and mark the position of the screw holes. Use a masonry drill to make holes and insert wall plugs in them. (See pic. B)



4 (See pic. C) Position the shelf on the bracket and place a spirit level on it. Move the shelf until it is level. Position the second bracket beneath it, mark its position and fix in place as before.

BLEEDING YOUR RADIATOR

It is easy to tell if a radiator needs bleeding. When the heating is on, feel the top and the bottom of the radiator. If the top is cooler than the bottom then there is air in the radiator preventing the hot water from rising to the top. This means that your radiator is not putting out as much heat as it should.

Preparation

1. Safety First!

Turn off your heating system so that the pump is not running and the water is cool.

2 To bleed your radiator you will need a radiator key. If you haven't got one you can get one for a few pence at a DIY or hardware store. You should also protect your carpets as the water being released from the radiator will be dirty.

Work Sequence

1 Get a cloth and place it under the bleed nipple which you'll find at one end and gently turn the key - watch out for hot water though. The idea is that the water pressure pushes the air out of the radiator.

2 Open the valve *just enough to let the air out*, but be very careful not to completely unscrew it. You'll hear a hissing sound as the air releases.

3 When the air is all gone the hissing stops and water will run out. At this point tighten the valve.

HEATING CONTROLS

If you stay in control of your heating system, you can stay in control of your heating bills and your comfort. Adequate heating controls should be able to give you heating and hot water where you want it when you want it.

This guide will not attempt to deal with the installation of the full range of heating controls improvements that can be made. For further information about improving your heating controls and a list of local Energy Efficiency Professionals please contact the Solent Energy Efficiency Advice Centre. **Most heating control improvements require both electrical and plumbing work and therefore should only be attempted by the most experienced DIY expert.**

Detailed below is one heating control improvement that the more experienced DIY expert might like to consider.

HOT WATER CYLINDER TIMER

If your hot water system has no form of time control you may well be keeping water hot when it is not being used which wastes energy and money. This will be particularly true of on peak electric immersion heaters.

Safety First!

- Electricity can be very dangerous, so if you are in any doubt seek advice from a suitably qualified electrician.
- Ensure the electricity mains is switched off before beginning any work.
- Read and follow manufacturers instructions carefully.

If you have an electric immersion heater, time clocks can be used to set the water heating periods and limit the duration of the heating. Both digital and mechanical time clocks are available from electrical stores and DIY shops.

A timer for an electric immersion heater could save you as much as £20 to £30 year after year

ENERGY SAVING LIGHTBULBS

Did you know that switching an ordinary 100W bulb for an energy saving one could save you up to £10 a year on your electricity bills?

And did you know that you wouldn't need to change it again for around five years?

So imagine what you could save, year after year, if all your bulbs were energy saving.

You have probably seen energy saving light bulbs in DIY shops next to the ordinary bulbs. They use advanced 'electronic' technology to produce highly efficient light, using only a quarter of the electricity that ordinary bulbs use. They also last 8 times longer, saving you money year after year.

Like ordinary bulbs, energy saving light bulbs come in either a standard bayonet or screw fitting, so they should fit easily into any light fitting in your home. They also come in a variety of shapes and sizes so you can choose one that works best with your light fittings.

Just like ordinary bulbs, energy saving light bulbs come in a wide choice of Watt ratings. Here are some examples with their energy saving equivalents:

Ordinary Bulbs	Energy saving bulbs
25W	5W
40W	7- 10W
60W	15-18W
100W	20-25W

NOTES

What is Energy Efficiency?

Energy efficient products and services save you money and they use the latest technology so there's no compromise on performance. Simply by investing in a number of products, THE AVERAGE HOUSEHOLD FUEL BILL OF

£500

CAN BE REDUCED BY UP TO

£200!

AND THAT'S A SAVING
YOU'LL MAKE YEAR AFTER
YEAR AFTER YEAR.

The Solent Energy Efficiency Advice Centre is independently owned and operated by the Southampton Environment Centre (Registered Charity Number: 1031482) and is part of a national network of Advice Centres supported by the Energy Saving Trust.

Neither the Solent Energy Efficiency Advice Centre nor any of the partners in this project can be held responsible for third party products. In addition, the project partners accept no responsibility for any damage or loss incurred by reliance on the accuracy of the information in this brochure. While care has been taken to ensure that the information contained in this brochure is accurate, it cannot replace expert advice.



Energy Saving Tips

- Defrost your fridge regularly to keep it running efficiently
- Turn the central heating down if you are too warm
- Turn off lights you don't need
- Dry clothes outside when the weather is fine
- Wait until you have a full load before using the washing machine
- Switch your TV and video off rather than leaving them on standby
- Keep lids on saucepans when cooking
- Close curtains at dusk to keep the heat in
- Take a shower - it uses less hot water than a bath

For advice and information on Energy Efficiency call the Advice Centre on:

0800 512012