WATERPROOF YOUR ROOF

SKILL LEVEL

If you are scared of heights don't attempt to repair your roof. If, however, you are confident at working from ladders and lightweight scaffolding towers, then the jobs described here aren't difficult.

SAFETY FIRST

Ladders or scaffolding must be tied into the building and placed on firm ground. Get someone to support the bottom until you have tied the top. Use a ladder stay to give a good point of contact with the building. Warn everyone that you will be working on the roof, and erect barriers to keep people away. Anyone working below should have a hard hat.

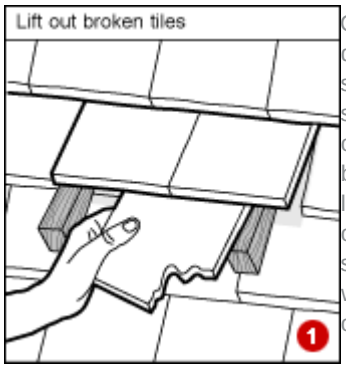
INTRODUCTION

Leaking roofs can damage the interior of your home. Fortunately there are lots of user-friendly products which will help to keep the weather out.

Repairing leaks in roofs is normally the easy part. Finding out exactly where the leak is can be more difficult. Water can travel along the underside of beams and creep between close-fitting layers of roofing material, so the damp patch won't always appear directly below the leak. Eliminate all the possible causes one by one, rather than jumping to conclusions.

2 - Detecting leaks

The most difficult place to detect leaks is on a flat roof. Often, the only answer is to completely coat the roof with a waterproofing solution.



On pitched roofs the job of detection should be easier since you can identify slipped slates and tiles from the outside. Remove and replace broken tiles by carefully lifting them clear of the nibs on which they rest. It can sometime help to insert wooden wedges under the overlapping tiles first (1).

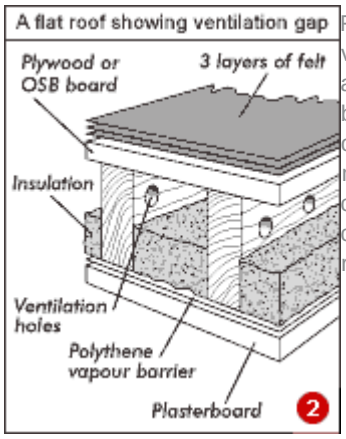
Use a pair of binoculars to inspect your roof every year.

Leaks around chimney stacks are notoriously difficult to diagnose. The most obvious cause is rain coming in from the top, or leaking flashings letting rain in around the sides. However, this might not turn out to be the case. Often the cause of the damp is condensation within the flue. By the

time this is discovered, a great deal of time, effort and money might have been wasted sealing the flashing and capping the pots.

3 - Condensation

If moisture vapour from the house (which travels through ceilings) is trapped in an unventilated space it will cause dampness through condensation. This can happen in lofts, disused chimneys or above the ceilings in flat roofs.



Flat roofs must have enough ventilation to keep the space above the insulation and below the waterproof felt free of airborne moisture (2). If moisture builds up it will cause damp patches on the ceiling and blisters in the roofing felt.

Disused chimneys must be ventilated with an air inlet at the bottom and an outlet at the top. If this isn't done airborne moisture from the house will find its way into the chimney and condense on the colder inside. This results in damp and soot being drawn through the brickwork to form damp patches on the chimney breast.

A cold spot often found in the corner of bedrooms with sloping ceilings, is due to the loft insulation being pulled back to keep the loft ventilated. In some cases, there might be no insulation at all in the short sloping part of the ceiling, which means it is a natural place for condensation to form.

One cure for condensation is to remove airborne moisture through better ventilation using extractor fans or a dehumidifier.

4 - Flat felt roofing

Flat roofs should never be level. The water should run away quickly.

Puddles and low spots

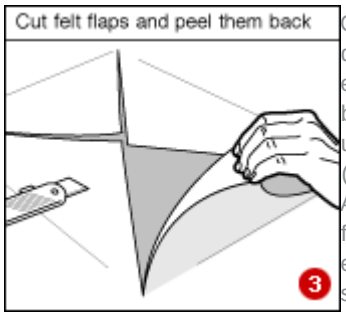
If the water collects on one part of the roof it is likely to leak through. If you can't fill the low spots with trowelling-grade mastic, or build it up with two or three layers of felt, create

a small section of new roof over the old one. Use a sheet of polystyrene stuck to the existing felt with bitumen.

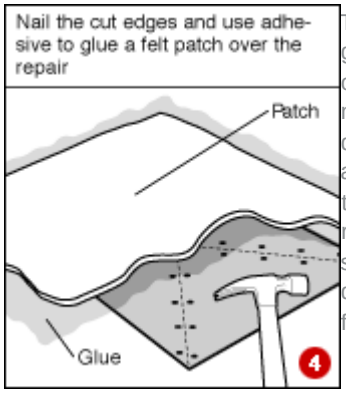
Cover the top of the felt with plywood and lay felt over the plywood. Make sure the felt is long enough to run down the sides and at least 150mm (6in) onto the roof. Stick the felt onto the existing roof with cold-lay adhesive or hot mastic to create a watertight seal.

Blisters

If you have small blisters on a flat roof that aren't leaking, your best option is to leave them alone and use a solar-reflective coating to keep the surface cool during the summer. If the felt has broken or looks like it might soon break, then it must be repaired.



Cut back the felt with four diagonal lines to create envelope flaps. Gently peel back the felt and expose the underlayer of roof decking (3).
Apply a generous coating of felt adhesive and lay the cut edges into the adhesive, squeezing out any excess.



Tack the flaps with galvanized felt nails, otherwise known as clout nails. When this layer has dried, apply more adhesive and stick a patch of felt over the top so it overlaps the repair by 150mm (6in) on all sides (4). To help it stick down, place some slabs on it for a few days.

5 - Repair tape

Flashing and joins to vertical upstands can be covered by flashing repair tape. Be sure to apply enough pressure when pressing it in place in order to get rid of any trapped air underneath (5).

6 - Stopping heat damaging felt

Dark-coloured felt will attract a great deal of heat in the summer and if the flat roof has insulation underneath, the temperature can only escape upwards. To counteract this white stone chippings are often used to reflect the sun. The problem with chippings however, is that if anyone walks on the roof, the chippings can get pressed through the felt and can cause leaks. Another way of protecting the felt is to use solar-reflective paint which is made specifically for this purpose (6).

The paint can be applied by brush or roller in a single coat. Any flat roof regardless of whether it leaks or not, will have its life extended by the application of solar-reflective paint.

7 - Applying waterproofer

Waterproofers come as water-based emulsions for use in fine weather and solvent-based paints, which are suitable for use in the winter months, or when it looks like it's going to rain before the coating is dry.

Before applying waterproofer clear all traces of algae and moss off the roof using a fungicide and moss killer. It can take several days to kill off the roots.

Brush the roof with a stiff broom and apply the first coat of waterproofer. If you are applying a bitumen emulsion, it is best to dip the brush in water from time to time to improve the flow. When the first coat is dry, apply a second coat in the opposite direction.

8 - Laying new felt

If you are re-felting part of your home use a high-performance polyester felt. If you are felting a shed or garage you can use cheaper traditional felts. These don't

have such a good life expectancy.

The traditional way to felt a roof is with three layers laid on top of each other. Each layer must start from the lowest part of the roof so the laps are stepped in the right direction to shed the rain on to the next sheet. Over timber decks the first layer should be nailing preparation-layer felt specially made for this purpose.

Make sure that the joins in each layer are not directly above each other. They should be at least 150mm (6in) apart.

Stick the second layer of felt onto the first with a continuous layer of hot bitumen or cold-lay adhesive.

Where the roof meets a vertical wall, you will need to cut strips of felt to lay over the top of the horizontal layer and up the wall. You will then need a piece of felt or flashing to insert into a chiselled-out mortar joint in the brickwork. If you can't do this, use repair tape (Flashband) stuck over the top.

9 - Mastic sealants

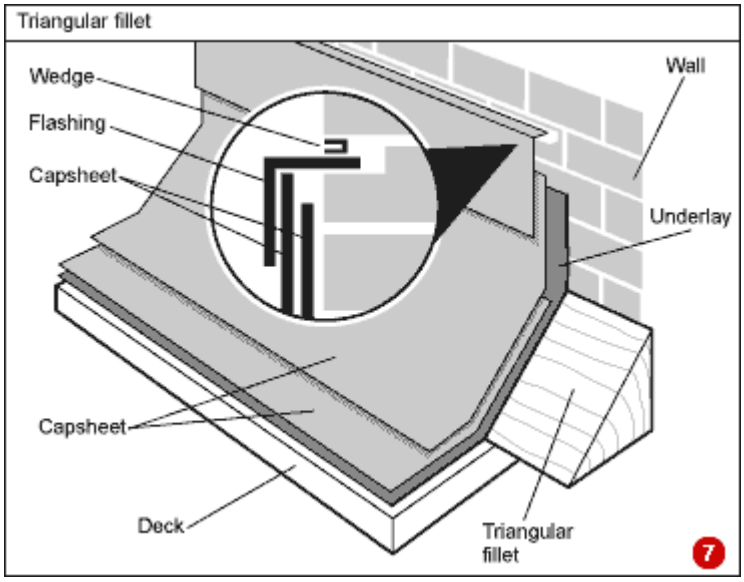
Gun-applied mastic sealants can be used to stick down the edges of roofing felt and reseal flashings around chimneys. Make sure the surfaces to be stuck are clean and dry.

Wedge loose flashing by hammering small strips of lead into the brick courses.

Use flashing repair tape to cover splits and gaps.

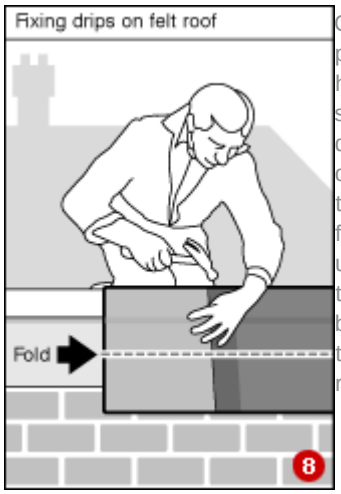
10 - Applying self-adhesive roofing felt

Apply a two-layer high-quality roofing felt with a self-adhesive backing. Once laid the heat from the sun helps to stick the felt down. Make sure the surface is clean and dry. The roof board should be run with a slope to shed the water. Use triangular wooden fillets at the edges next to walls so the felt doesn't have to run into an acute corner (7).



Apply the sealer/primer to the roof board with a brush or roller.

Once dry lay the first layer of felt onto the roof. Roll back to halfway and cut the backing paper so you can peel it off.



Gently tread the felt down as you pull off the paper. When the first half is stuck down, repeat for the second half, then stick down the drip edge pieces. These will run over the edge of the roof and into the gutter. They should be nailed face down and then folded upwards to form a double thickness drip over a wooden batten (8). If you aren't sure how this is done, look at a few flat roofs in your area.

When the drip edge is in place, the top layer of felt can be run down over the existing felt. Stagger the joins in the second layer so they are not in the same place as the joins in the first layer.

If you have lapped felt over the green mineral dressing, use mastic to fill the granular surface so the felt has an even bed to stick to.