



# DIY

## QUICK FIX

PROBLEM-SOLVING TECHNIQUES FOR REPAIRING  
AND IMPROVING YOUR HOME



**JULIAN CASSELL, PETER PARHAM, AND THERESA COLEMAN**  
CONTAINS MATERIAL PREVIOUSLY PUBLISHED IN *DO-IT-YOURSELF HOME IMPROVEMENT*



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London, New York,  
Munich, Melbourne, Delhi

<b>Project Editor</b>	Tarda Davison-Aitkins
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<b>Senior Editors</b>	David Summers, Simon Tuite
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<b>Production Controller</b>	Rita Sinha
<b>Special Photography</b>	Gary Ombler and Steve Gorton

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# Introduction

This book is aimed at showing you how you can make simple repairs to accidental damage that can occur to your home. Using step by step photography, and jargon-free language, we show you how to maintain your home, and how to make those improvements that may have otherwise seemed impossible. *DIY Quick Fix* will show you how the job is done.

The key to DIY is knowing what you can achieve. As long as safety issues are never compromised and building codes are adhered to (anything more than “paint-and-paper” work usually requires a visit from a building inspector), pushing your own perceived limitations a little further than you would have thought possible will provide a great deal of satisfaction. By challenging yourself, you build up new levels of skill, aptitude, and, ultimately, confidence.

We believe that the secret to success in any home-improvement project is taking time to plan, to budget, and to hone your abilities. Compromise is often required, and finding the correct balance between these competing elements often comes down to experience. We have tried to cram as much of our own experience as possible into the following chapters to give you a head start and to add to your own knowledge and skills. We wish you success in the work ahead.



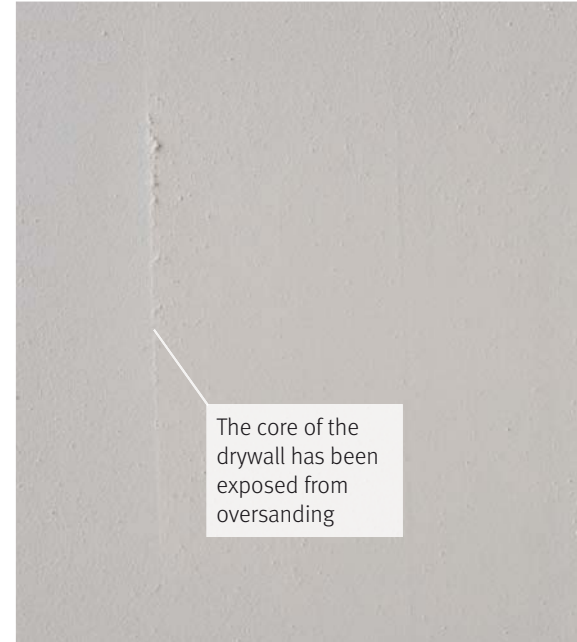




Alterations and repairs

# Repairing oversanded drywall

A common drywalling problem for DIYers is trying too hard to smooth a drywall joint. While a seamless wall requires a smooth, sanded surface, if you sand too vigorously you can actually remove part of the paper face, and this will need to be repaired before you can paint.



The core of the drywall has been exposed from oversanding

## Tools and materials needed

.....  
Drywall knife, joint compound, sandpaper

**1** If you have sanded through the joint compound and the paper face of the drywall, you will need to repair it.

## Drywall joints

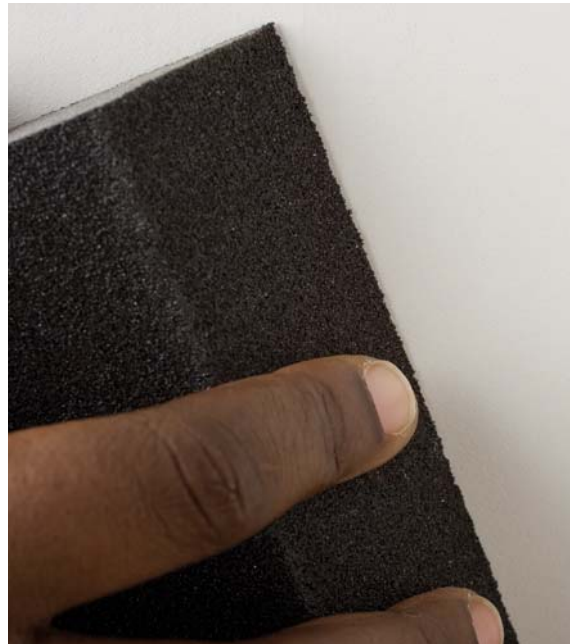
The point where two sheets of drywall meet is first taped with joint tape, and then covered with up to three layers of (drywall) compound to

smooth the joint. After each layer of compound is applied and dry, it will need to be sanded before applying the next coat.





**2** Apply new joint compound with a drywall knife over the damaged area.

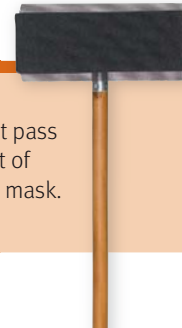


**3** After the compound is dry, sand the area gently with fine-grit sandpaper.

**Sanding drywall**

Drywall is going to be the base for your paint or wallpaper, so make sure you achieve a smooth finish. Hand sand for details and finishing work,

but use a pole sander (see right) for your first pass at walls and ceilings. Sanding generates a lot of dust, so it can be a good idea to wear a dust mask.



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# Repairing a drywall wall pop

Common in newer homes, drywall pops are nails that have moved from under the surface of the drywall and popped through the finish. Screws are less likely to create pops. Before repairing the pop, remove the nail. If you can't get the nail out, hammer it deep into the wall.



## Tools and materials needed

.....  
Drywall knife, screwdriver, screws, joint compound, sandpaper

**1** **Over time**, nails may pop through wall surfaces, as shown above.

## Using adhesive to hang drywall

Attaching sheets of drywall to studs and joists by applying a bead of caulk or adhesive reduces the number of screws or nails you need to use.

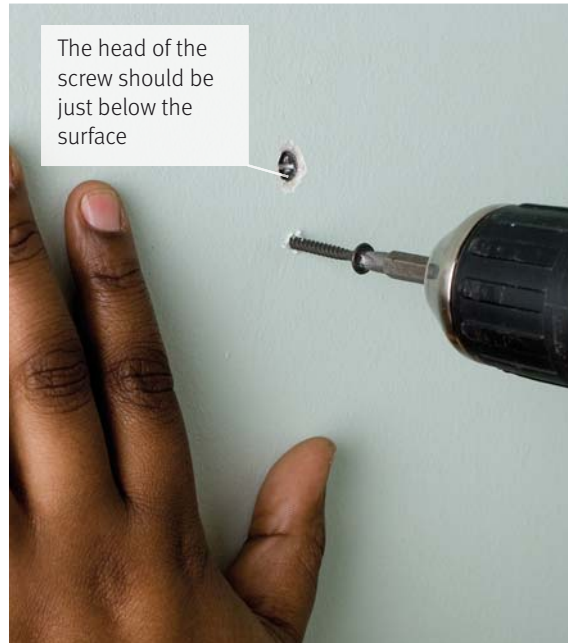
Once the drywall is pressed in place you will only have to screw or nail around the perimeter of each drywall sheet.







**2** Using a drywall knife, carefully chip away any material that is not flush with the wall or ceiling surface.



**3** Drive one or two screws into the surface of the drywall to attach it securely to the studs underneath. Finish the surface with joint compound, and sand when dry.

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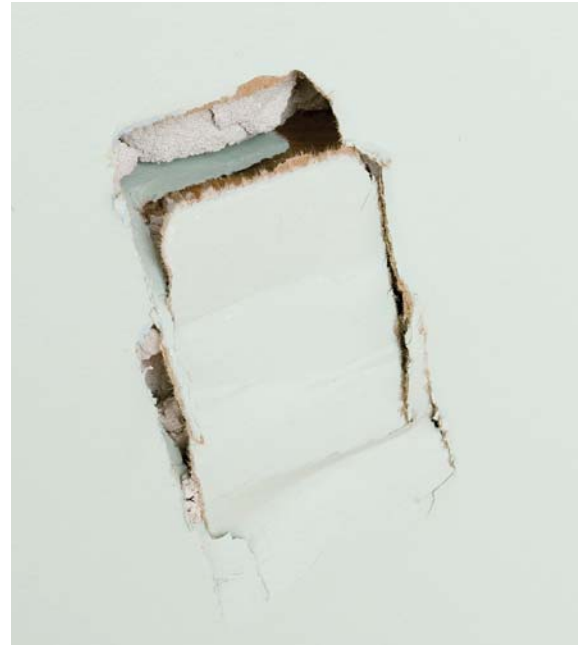
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# Repairing a hole in drywall

Holes in walls happen. While a piece of mesh tape would hold joint compound in place to allow you to patch a small hole, a larger hole—perhaps caused when moving bulky furniture—would need to be patched with a new piece of drywall, as shown on the following pages.



## Tools and materials needed

.....  
Drywall knife, drywall patch, pencil, wood strips, screws, screwdriver, mesh tape, joint compound, drywall saw, sandpaper

**1** If you have a large hole, or damaged area in your wall or ceiling, you will need to patch the hole.

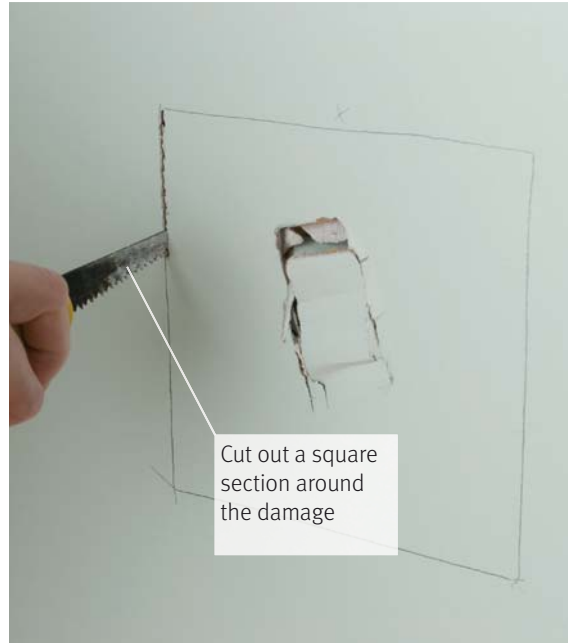
## Drywall basics

Drywall—gypsum sandwiched between paper—has long since replaced traditional plaster as the standard wall covering, being cheaper and easier to attach to stud walls. Once in place, drywall seams are covered with

a layer of joint compound for a smooth finish. There are many types and thicknesses of drywall available. Some types are mold- or water-resistant, others are fire-resistant.



**2** Cut a piece of drywall to a size just larger than the damaged area. Use this as a template and trace the shape on the wall over the damaged area.



Cut out a square section around the damage

**3** Following the pencil outline marked in Step 2, cut out the wall section with the drywall knife.

Continued ▶

### Cutting drywall

Use a straight edge and a utility knife to cut a section off a panel of drywall. Pass the knife just through the top layer of paper and into the core, then snap the panel along the score line and away from the cut. To cut into

the wall, as above, use a special drywall saw. This has a point that allows you to break through and cut the material.



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## Repairing a hole in drywall



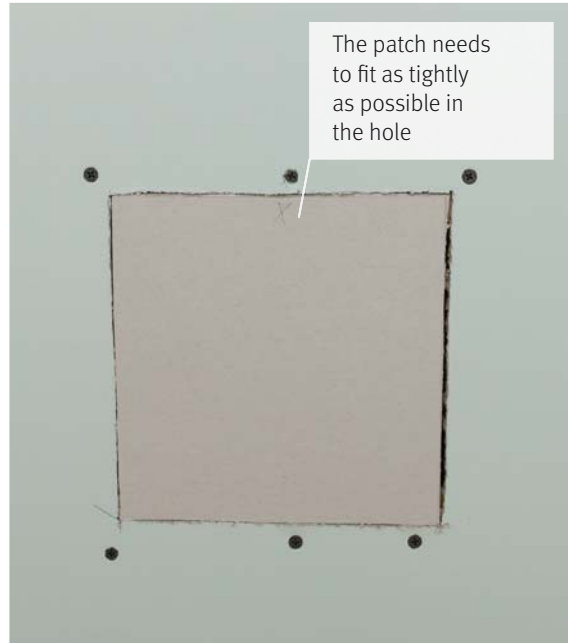
**4** Cut two wood strips each about 6 in (152 mm) wider than the hole. Insert the strips into the hole.



**5** Secure each wood strip to the outside edges of the hole with screws.



**6** The **wood strip** is used to hold the drywall patch in place. Insert the patch from Step 2 into the hole.



**7** Slip the **drywall** patch into the hole to ensure it fits well, and then screw through the patch to fasten it to the wood strips behind it.

Continued ▶

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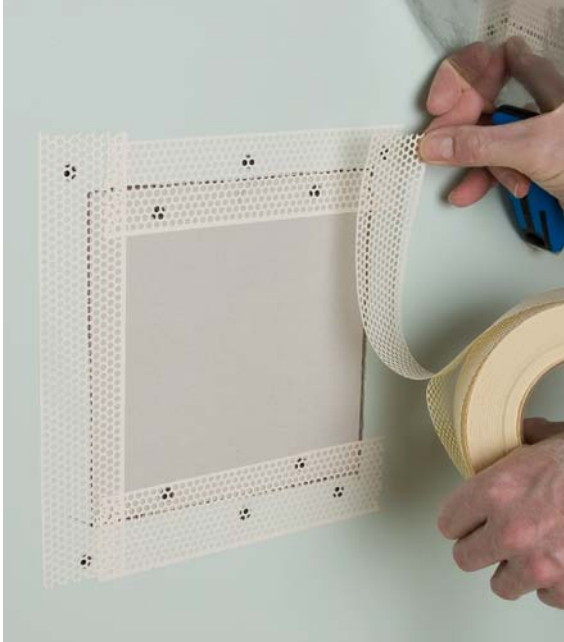
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**8** Apply strips of tape to cover the seams between the drywall patch and the wall.



**9** Use a drywall knife to spread a thin layer of joint compound into the gaps and evenly over the whole area, before sanding it lightly when it has dried.

### Finishing drywall

Add enough water to the joint compound mix (or a little extra water to a premixed tub) to thin it and make it easy to spread. Only prepare as much of the compound as you plan to use immediately, because it can dry out. After

spreading on the joint compound, you can use a trowel to smooth the compound for a seamless finish, and then sand it with fine sandpaper. Be careful not to oversand and damage the paper face of your drywall.

# Repairing vinyl siding

Vinyl siding can chip or dent. The good news is that it is fairly easy to remove and replace. When removing the siding and the nails, remember to take care as you do not want to tear any house wrap—such as a moisture barrier or breather membrane—underneath.



This siding panel is designed to look like a double strip

## Tools and materials needed

Zipper (siding removal tool), pry bar or claw hammer, vinyl siding, nails

## Cutting vinyl siding

It is comparatively easy to cut vinyl siding; you can either score it with a utility knife and then snap it, or use tin snips (right).



1 **Insert a zipper** into the seam between the damaged panel and the one above it. Pull the panel above out slightly, so it is clear of the one below.

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Use either a pry bar or a claw hammer

**2** Carefully take out the nails that are holding the damaged panel in place and then remove the entire panel.



**3** Hook the bottom of the new panel onto the top of the one below, and nail the top of the new panel in place.

#### Fastening new siding panels

Typically, horizontal siding is installed from bottom to top, nailed to plywood sheathing that has been covered in house wrap or other building paper. When attaching vinyl siding,

leave a gap of about  $\frac{1}{8}$  in (3 mm) away from the house when driving nails into the sheathing (right) to allow for movement.





# Repairing a **split clapboard**

Clapboards—a traditional form of siding on external walls—are difficult to remove, so aim to repair, rather than replace them. If you do have to remove boards, cut through joints, or pry boards out and cut through nails with a hacksaw (see p.17).

## Tools and materials needed

Chisel, adhesive, hammer, nails, nail set, exterior wood filler, paint



**1 Pry away the split** section of board gently, taking care not to damage the good board below it, and remove it.

Continued ▶

## Types of siding

Siding is the outer cladding material that protects a house from weather and water penetration, but it also offers a decorative effect. There are different styles of wooden siding—from feather-edge boards to wooden

shingles—as well as sidings in materials that require less maintenance, such as fiber-cement and vinyl, which are typically available in a full range of colors.

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**2** Apply a **water-resistant** wood adhesive along the top edge of the piece of wood you have just removed, then reapply the broken piece to the board it came from.



**3** **Nail (or screw)** through the broken piece into the furring strips behind it, patch over the crack and nail holes with exterior wood filler, and paint over the board.

### Applying siding

Siding should be applied on top of either building paper (a moisture barrier) or a breather membrane (which stops water from entering a wall, but allows vapor within the wall to escape). If you have a block house you may need

a series of furring strips over the paper or membrane to provide anchor points for the nails or screws to attach the siding.

# Repairing a cedar shingle

Cedar shingles can crack or split due to weathering or from a direct impact. They can curl or bow over time, too. It is best to replace damaged or bowed shingles completely instead of attempting to repair the shingle in place. For more information about cedar shingles (and shakes—handmade shingles), visit the Cedar Shake and Shingle Bureau website at: [www.cedarbureau.org](http://www.cedarbureau.org)

## Tools and materials needed

Hammer, nail set, hacksaw blade, cedar shingle, block plane, nails



**1 Identify the damaged section of shingle you want to replace.**

Continued ▶

## Shingles and shakes

Provided the shingles are made from a wood that is treated and has natural durability (the usual choice is either cedar or redwood), they should be able to last for more than 20 years. Wooden shakes are similar to

shingles, but are split on one or more sides and are useful if you want to create a more rustic effect. Shakes also tend to last longer than shingles.

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**2 Remove the shingle** by using a nail set to drive the finish nail all the way through the shingle, which will then allow you to slide the damaged shingle out easily.



**3 If you prefer** not to punch the nail through, you can slide a hacksaw blade up underneath the shingle to cut through the nail and free the shingle.



**4** After you have cut the new shingle to size you may need to plane a little excess material off for a perfect fit.



**5** Install the new shingle as shown and nail in place. Hammer the new nails in line with the shingle nails on either side of the new piece.

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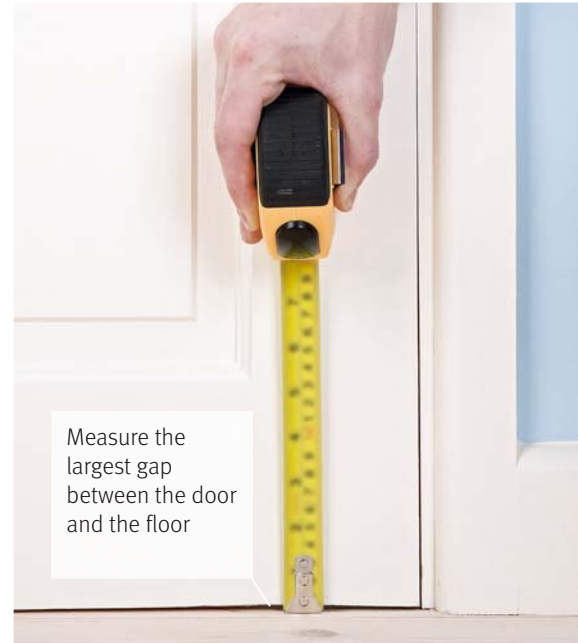
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# Sticking doors: planing the bottom

Doors can stick when the bottom of the door is rubbing against the floor. Gently removing the wood from this area of the door will return the door to an easy opening and closing action.



## Tools and materials

Tape measure, wood, pencil, block plane or saw



## Tape measure technology

Technology has taken the tape measure to another level. A digital display shows a measurement once the tape is locked.

- 1 Measure the exact height** needed to clear floor level. Cut a small offcut of wood to the height that you have just measured.



**2** With a pencil on top, move the offcut across the floor to trace an exact line on the door. This is called scribing.



**3** Remove the door from the frame and plane down the guide line. If a large amount of wood needs to be removed, use a saw.

### Adjusting a block plane

The compact nature of a block plane means that it is very easy to handle, as well as being easy to store in the toolbox. By adjusting the depth screw at the back

of the plane, the blade can be moved up or down, altering the amount of wood that will be shaved from the door.



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# Rattling doors: moving the strike plate

Doors that fit too loosely in their frame rattle in a draft. This is often due to the strike plate being in the wrong position. Measure the area accurately to successfully move the strike plate.



## Tools and materials

Combination square, pencil, screwdriver, chisel

- 1 **Measure the gap** between the door latch and the closing edge with a combination square.

## Using a combination square

The features of a combination square include a steel rule that slides within the stock of a square. As well as determining a right angle, other functions of the combination square include scribing—marking

a material to fit exactly against a wall or ceiling—and finding levels. It is also ideal for measuring a small rebate or grooved cut.





**2** Transfer this measurement to the area between the frame edge and the front edge of the strike-plate opening. Move the strike plate to this new position.



**3** Drill holes into the door frame to guide the screws into position. Chisel out wood from the door frame to allow for the strike plate's new position and screw it in place.

#### Using a wood chisel

**1** To remove a depth of wood, first use the chisel to make vertical cuts along the marked guide lines.  
**2** Then place the chisel within the guide lines, with the bevel-edged side facing downward. Hold it at

an angle, and strike the handle with a hammer (photo right).

**3** Clean up the edges of the cut using the flat side of the chisel.



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# Packing out a hinge

“Packing out” a hinge and reducing its recess can help a door to open and close if it is binding on its hinges. It is also a good solution if too much wood has been removed from the frame or door to fit a hinge.



## Tools and materials

Drill-driver, scissors, cardboard

- 1 Remove the door** from the frame. Cut out pieces of cardboard to the exact shape of the hinge recess.

## Hinge options

Butt hinges are the most common form of hinge for interior doors. These have three or four holes in each leaf and a fixed pin in the hinge barrel. Loose

pin hinges allow you to remove a door without removing the hinge. Rising butt hinges lift a door upward as it is opened, to allow for a sloping floor.





**2** Position a piece of cardboard in the hinge recess. Rehang the door, attaching the screws through the cardboard.



**3** Test the door, adding more pieces of cardboard if required. Repeat for other hinges on the frame.

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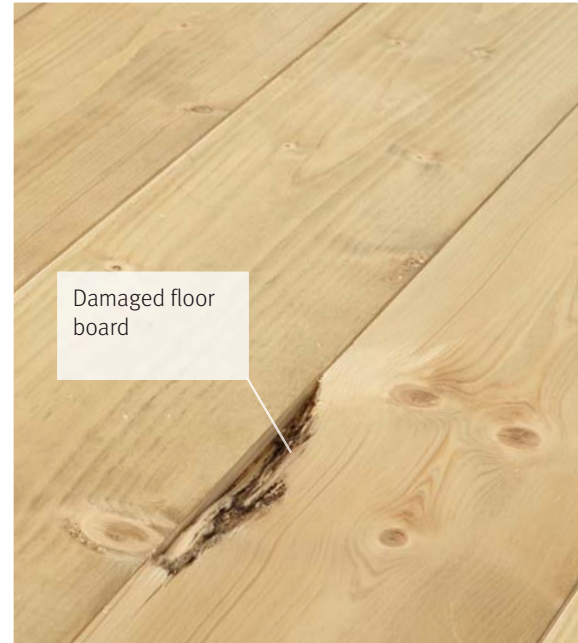
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# Replacing a tongue-and-groove board

The interlocking design of tongue-and-groove floor boards means that it is necessary to cut through the board joints to release them from their position. A circular saw is ideal for this purpose. Take care to set the saw blade to avoid damaging any pipes or wires below floor level.



## Tools and materials needed

Metal cutting blade, circular saw, pry bar, chisel, replacement board tongue-and-groove board, lost-head nails, hammer, nail set, filler, sandpaper

**1** Even if the damaged area is small, the board will have to be replaced because the boards interlock. Set the circular saw to the exact depth of the damaged board.

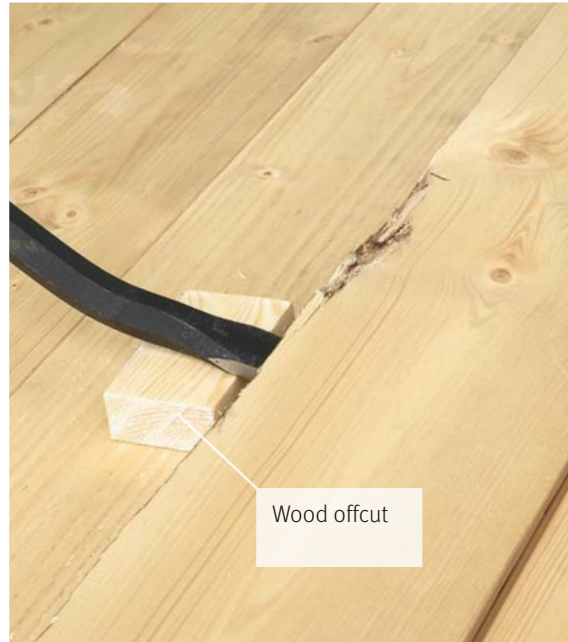
## Cutting across the grain

An alternative way to cut the damaged board is to cut it across the grain, along a joist. In this way a smaller section of board can be removed. However,

the adjacent boards would also have small cuts on their edges. For an exposed floor these would have to be disguised with an appropriate filler.



**2** Run the saw down the entire length of both sides of the board.



**3** Pry out the damaged board using a pry bar. Rest the bar on a wood offcut to prevent the bar from damaging adjacent boards.

Continued ▶

### Using a pry bar

A pry bar can be used to remove nails, by sliding the claws around the nail and pulling the bar towards you. It can also be used to lever out or to break down masonry.



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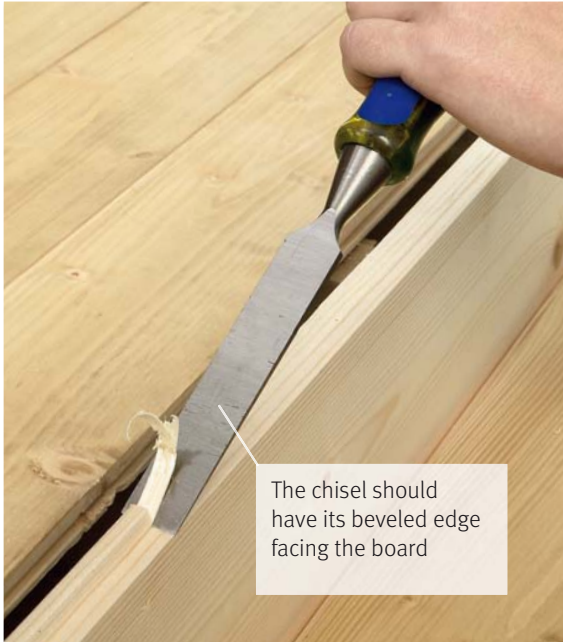
Fixing a loose board

Filling a gap between boards

Patching a flat roof

Repairing an asphalt shingle

Repairing a leaking gutter



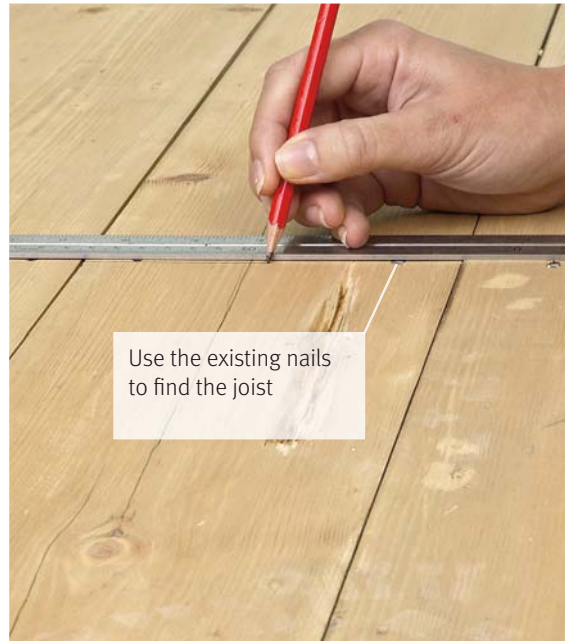
**4 Remove the tongue** from the new board, using a sharp chisel. If the boards are very thick, you may need to use a saw.



**5 Secure the board** in place. Knock the head of the nails below the surface of the board with a nail set (see p.41). Then fill the holes with wood filler, and sand smooth.

# Replacing a **square-edged board**

It is a much simpler process to replace square-edged boards than tongue-and-groove boards, as they do not have interlocking edges. It is also less likely that cables and pipes below floor level will be damaged, but caution is always required.



## Tools and materials

Pencil, ruler, pry bar, saw, wood offcuts, replacement board, nails, hammer

**1 Mark a pencil line** on the damaged board over the nearest joist. If the damage is central, mark lines on joists either side of the damage.

Continued ▶

## Matching board dimensions

It may be difficult to buy replacement boards with matching dimensions. If the new boards are too wide, reduce the width with a table saw. If an exact depth

match is not possible, buy boards that are slightly less deep than the desired depth, and position pieces of hardboard on the joists below to level the boards.

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Rattling doors; moving the strike plate

Packing out a hinge

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Replacing a square-edged board

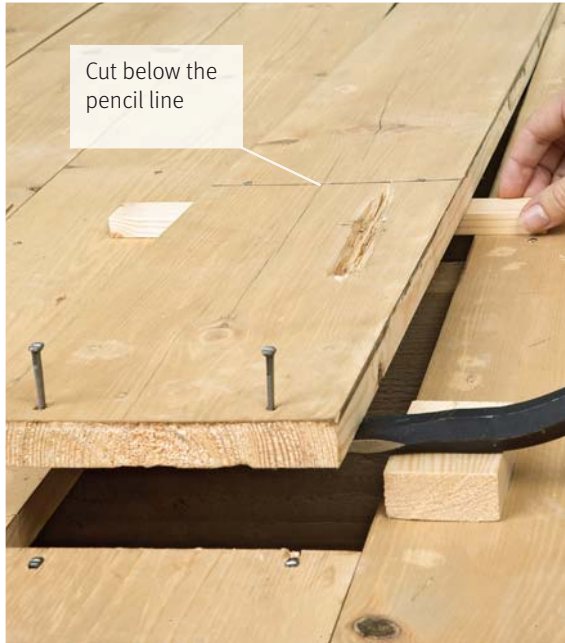
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**2** Rest the pry bar on a wood offcut to avoid damaging the floor. Lever up the broken board with the pry bar. Then place wood offcuts under the board to secure it.



**3** Saw along the pencil line to remove the damaged section of board. The offcuts, which line up below the pencil mark, will serve to protect the sound floor boards.

#### Recognizing problems with wood

When buying wood, look out for splits, knots, and uneven grain. You will pay more for defect-free wood, but examining timber before purchasing will save time during your project.





**4** Using the damaged section of board as a template, mark the new board and cut it to size.



Use the correct length of nail so it fastens to the joist

**5** Position the newly cut section of floorboard into the gap, and nail it in place.

#### Cutting wood with a saw

- 1 Draw a pencil guide line across each face of the wood, marking where you will cut.
- 2 Use a utility knife to score along the guide line.
- 3 Hold the saw with your index finger pointing toward

the blade. Place the blade just to the offcut side of the guide line. Start the cut by making two or three backward strokes across the corner of the wood. Once you have cut a shallow groove, saw back and forth using long strokes.

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# Fixing a loose board

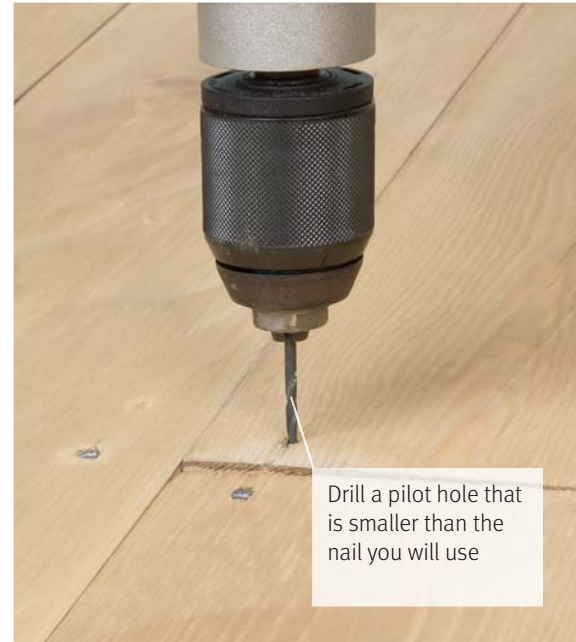
Loose or creaking floor boards are a common problem, particularly in older buildings, but they are straightforward to fix. Screws are more effective than nails at securing loose boards, but if used on exposed floor, the finished job may not be as pleasing to look at.

## Tools and materials needed

Drill, nails, hammer, nail set

## Versatile claw hammers

A claw hammer is a particularly versatile DIY tool. As well as positioning and securing nails, it can be used as a wrecking tool to remove material. Take time to choose a hammer with a good “balance” and grip.



- 1 On one side** of the loose floorboard, drill a pilot hole down through the board and into the joist below.

Ergonomically shaped claw hammers, like the one shown here, make striking and levering easier and more comfortable.





**2** If the floor is exposed, hammer a nail into the hole. If appearance is not important, use a screw, which will provide a more secure connection.



**3** Use a nail set (if using nails) to knock nail heads just below the surface. If necessary, repeat on the other edge of the board.

#### Punching a nail below the surface

A nail set enables you to site a nail head just below the surface of a material. This is particularly necessary for attaching floor boards. Nail sets are available in several sizes.



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## Filling a gap between boards

Gaps between floor boards look unsightly and can cause drafts. This is not normally a problem with tongue-and-groove boards. For square-edged boards, large gaps should be filled.



### Tools and materials

Strip of wood, wood glue, hammer, block plane

- 1 Cut a strip** of wood to fit in the gap. Apply wood glue to both sides of the strip.

### Matching exposed boards

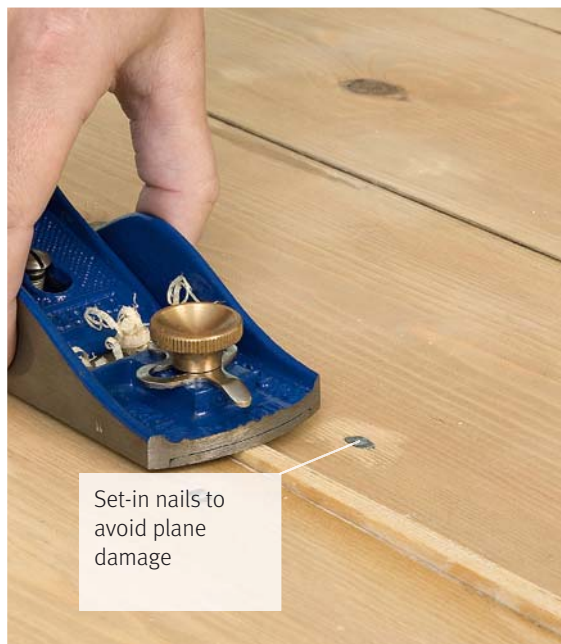
If floor boards are exposed, finding a replacement board that matches the color of the existing boards may be an issue that will need to be resolved. One solution could be to use an original board from a less visible area of

the room, such as under the sofa. If you are replacing more than one or two boards, try reclaimed or seasoned boards. You may be able to match them to your floor by treating the wood with wood dye or stain.



Be sure to remove excess glue

- 2** Insert the wood strip into the gap, knocking it in with a hammer for a tight fit. Allow it to sit slightly above the floor surface.



Set-in nails to avoid plane damage

- 3** After the glue has dried, use a block plane to remove the excess wood, and to create a smooth finish flush with the floor.

### Using a plane

Planes are best used for removing wood from thin edges, such as doors or sections of prepared lumber. A sound technique is important for achieving good results. Position the plane on the edge of the wood length.

Move it forward steadily, keeping the pressure on the toe (front) of the plane. As you reach the end, transfer the pressure to the heel (back) of the plane. Repeat until you have removed the desired amount of wood.

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Repairing an asphalt shingle

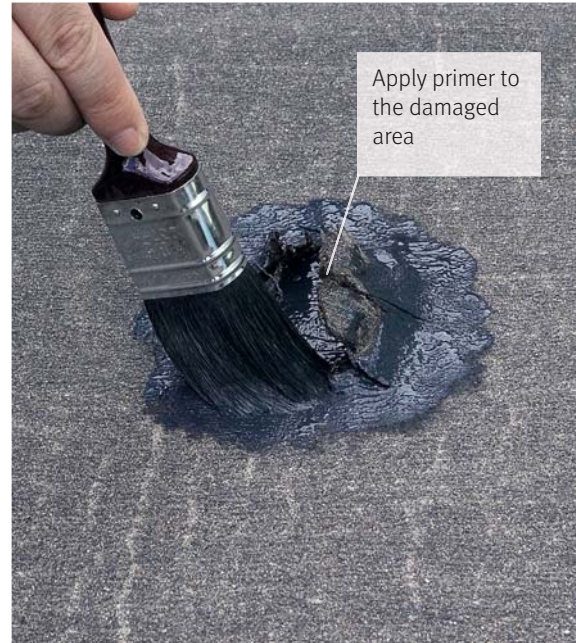
Repairing a leaking gutter

# Patching a flat roof

Small holes in a flat roof can be patched with a specially made primer and patching system. The technique will vary slightly according to the manufacturer; that shown here is typical. This repair requires dry conditions.

## Tools and materials

Primer and patching system, brush, scissors, flat-roof roller



- 1** **Dust off any** loose material from the damaged area. Apply primer to the area, overlapping it onto the undamaged part of the roof.

## What is roofing primer?

Roofing primer is a (usually) bitumen-based, undercoat that significantly improves the bond between the roof and the waterproofing material being applied to it—in this case a self-adhesive patching system. It also helps

to ensure a long-term, watertight finish. Before applying primer, the surface must be dry, and free of dirt, grease, and mildew. Remove any trace of mildew by washing with a solution that kills mildew spores.



**2** Allow the primer to dry according to the manufacturer's instructions. Cut some self-adhesive patching material to cover the hole and overlap it onto the sound roof.



**3** Apply the patch to the primed area, and smooth it by hand. Then smooth it with a flat-roof roller, ensuring a good seal.

### Self-adhesive repair material

This can be applied over damaged flashing and other roofing materials for a quick fix. Primer may be needed before application.



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### Patching a flat roof

Repairing an asphalt shingle

Repairing a leaking gutter

# Repairing an asphalt shingle

Asphalt shingles typically last between 15 and 20 years if they are properly installed and maintained. If you have a torn or broken shingle, water may find a way into the house and eventually cause mold or even structural damage to your home.



## Tools and materials needed

Pry bar, asphalt shingle, hammer, roofing nails, roofing adhesive

1 **Gently lift** the lower half of the damaged shingle to detach it from the ones below.

## Roofing materials

There are a variety of roofing materials available; usually, the more expensive they are, the longer they last. Asphalt shingles are the most popular, concrete tiles mimic clay tiles but are less expensive, clay tiles give a genuinely

traditional look, while slate tiles are strong, durable, and lightweight. Metal roofing and wood shingles also are regionally popular.





**2** Lift the good shingle lying directly above, and use a pry bar to remove the nails holding the damaged shingle.



**3** When you have removed all the nails, slide the damaged shingle out.

Continued ▶

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Replacing old square-edged broken boards

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Repairing a leaking gutter



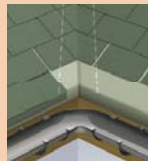
- 4** Cut a shingle to length and nail it in position into the plywood beneath, making sure the roofing nails will be concealed by the shingle above.



- 5** Coat the head of each nail with adhesive to seal around the top and prevent water getting through. Press the shingle firmly in place.

#### Repairing a shingle woven valley

When replacing the leaking asphalt shingles in a shingle valley, remember to keep fasteners 6 in (152 mm) away from the valley centerline.



# Repairing a leaking gutter

Gutter joints, whether sealed with a rubber gasket or sealant, will deteriorate over time and leak. The repair shown here uses gutter sealant or silicone caulk. However, you should check first that the leak is not caused because the gutter is blocked, or that attachments have come loose and caused the gutter to sag or lose its slope.



## Tools and materials

Gutter sealant or silicone caulk, caulk gun, cloth

**1 Disassemble the gutter** by unclipping the joint clip and lifting the gutter length from the joint.

Continued ►

## Plastic (vinyl) gutters

Guttering can be made out of many materials, such as aluminum, copper, or cast iron. The most common is plastic guttering, which uses sections that clip together. It is light, easier to work with, and requires minimal

maintenance. However, when handling long lengths up a ladder, it is best to enlist a helper if you can.



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**2 Remove the adjacent length** of gutter to give you clear access to the internal profile of the joint clip.



**3 Dust out the joint**, making sure it is clean and dry. Apply gutter or silicone caulk around the edge of the joint's profile.

#### Fixing a loose downspout

If a downspout comes loose, reattach loose brackets immediately as joints in the pipe may fracture and cause water infiltration. Reattach

the bracket slightly above or below its original position, with appropriate fasteners. Use wall plugs on masonry walls.





**4 Reassemble the joint**, attaching the clips securely back in place.



**5 Wipe away any excess caulk** with a cloth to leave a clean finish.

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Kitchens and bathrooms

# Drilling a tile **without cracking it**

Many installations in kitchens involve drilling through a tiled surface. It is essential to use the correct technique for drilling through tiles so they do not crack. The dust created from drilling ceramic tiles can discolor grout and sealant so you may want to vacuum dust from holes as you drill them.

## Tools and materials

Felt-tip pen, masking tape, drill and bits, vacuum cleaner, wall plug



## Changing a bit

Take care when changing a bit after operating a drill: the bit may be hot. Wear gloves to avoid a burn.



- 1 Mark the point** for the hole using a felt-tip pen. Apply some masking tape over the mark—it should still be visible.





**2** **Fit a tile drill bit.** Remember to switch off any hammer action.



**3** **Position a vacuum cleaner** below the mark and switch it on. Start up the drill on a low speed, and slowly increase the speed.

Continued ▶



#### Selecting a tile bit

Tile bits differ in shape based on material. The spear-shaped tip penetrates a tile, then enlarges the hole to the diameter of the tip's base.

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- 4** Once through the tile, change the bit for a masonry bit or wood bit, depending on the surface below. Drill to the required depth.



- 5** Remove the masking tape from the tile, then plug the hole with the appropriate wall plug, and insert the fastener as required.

#### Selecting wall plugs

Unless you are using masonry screws, a wall plug is required to secure a screw that is inserted into masonry. The plugs shown here are masonry plugs, and the different colors relate

to their width, or gauge. Wall plugs are also needed to make strong connections in hollow walls such as stud walls; these are of a different design from those used in masonry.



# Replacing a door hinge

Door hinges themselves tend not to break—if they do, you can simply replace them. What is more likely to happen is that the hinge plate will loosen through wear and tear. If this happens, you can reattach the hinge above or below its existing position.



## Tools and materials

Screwdriver, tape measure, pencil, drill, awl, hinge-cutting bit, filler, paintbrush, paint

## Easy-fit door hinges

All self-assembly kitchens use easy-fit hinges (as shown) and they usually have pre-drilled fastener positions. Most manufacturers supply accessories for each unit.



- 1 **Unscrew the loosened hinge plate** and remove it. Mark off a new position where you can get a firmer connection—slightly lower in this case—and reattach the plate.

Continued ▶

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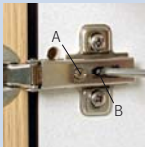
Replacing a toilet seat



- 2 Measure the new hinge** position on the door using the new plate position as a guide.



- 3 Use a hinge-cutting** bit to drill out the recess for the new hinge position. Take care not to drill too deeply.



#### Adjusting the kitchen doors

The doors on the kitchen cabinet can be moved slightly by tweaking the hinge settings. Tightening or loosening the screw “A” will move the door to the right or left. To position the door

farther away from the unit, loosen the central screw in the hinge plate (marked “B”), and adjust the door accordingly. Re-tighten the screw to secure the door.



- 4 Make an indent with the awl**, then screw the hinge in place, making sure that it sits perfectly flush against the inside of the door.



#### Drilling hinge recesses

Designed for cutting holes for kitchen door units, a hinge cutter is inserted into the chuck of a drill in the same way as any other bit.



- 5 Re-hang the door.** The old hinge plate and hinge holes can be filled and painted if required.

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# Repairing a drawer handle

The most common problem with drawers is a loose handle. You most probably need to strengthen the screws that hold the handle in position or else attach the drawer front more securely.



## Tools and materials

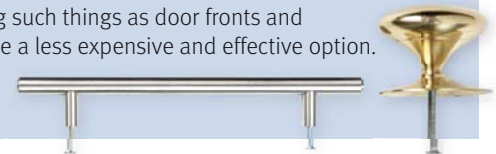
Screwdriver, adhesive, washers

- 1 Unscrew the drawer front** and remove the handle from its position.

## New look kitchen

The carcass structure of kitchen cabinets is ultimately hidden by such things as door fronts, drawer fronts, and a number of other decorative items. If you are happy with the layout of your kitchen but want a new

look, changing such things as door fronts and handles can be a less expensive and effective option.





**2** Apply strong adhesive to the thread of the handle. Position a washer on the screw before replacing the handle. Do the same for the other screw.



**3** Spread some adhesive on the back face of the drawer front before securing it.

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# Repairing a laminate countertop

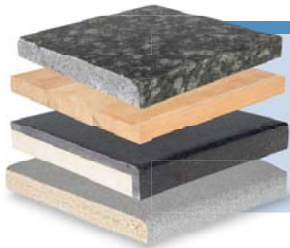
It is easier to repair a laminate countertop than you may think. Laminate countertop manufacturers offer filler products that are color-matched for small scratches and holes. For broken edges, the best idea is to reattach them as shown here.



## Tools and materials

Contact adhesive, piece of wood or plastic, masking tape, pencil or crayon

- 1 Apply contact adhesive** to both the countertop edge and the broken section of laminate. Use a piece of wood or plastic.



## Different types of countertop

Countertops are commonly made from solid wood or stone, laminate, and solid surfacing materials. Most types of countertops are available in standard sizes from local centers and can be

installed on site. Countertops made of solid stone, such as marble or granite, are generally supplied by specialized manufacturers.





**2** Wait for the adhesive to become tacky and stick the piece in place—use masking tape to hold it down securely.



**3** Once the adhesive has dried, remove the masking tape and use a pencil or crayon to disguise any white edges along the seam.

#### What is masking tape?

This low-tack adhesive tape—like blue painter's tape—is easy to remove, and it doesn't leave marks. It also can be used to protect surfaces when painting.



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# Repairing a **wooden countertop**

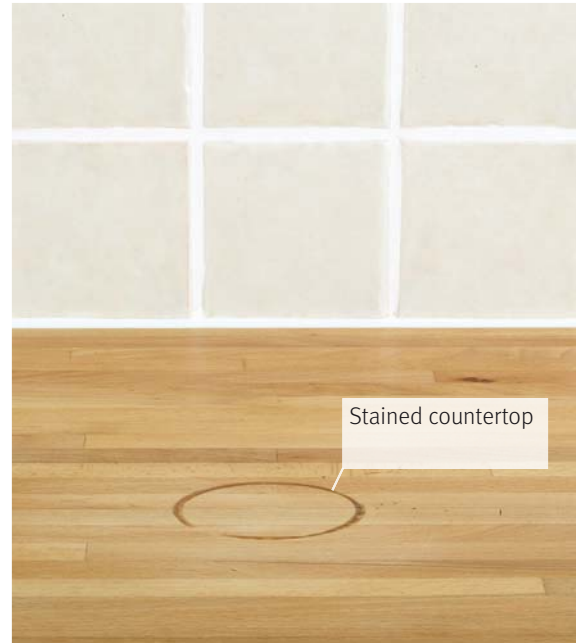
Over a period of time, and with regular use, a wood countertop surface, or butcher block, can become damaged or discolored. In most cases you can simply sand back the damaged area. This technique can only be used on solid wood countertops.

## Tools and materials

.....  
Sanding block, cloths, brush, latex gloves, wood oil

## Deciding on a countertop

Countertops are manufactured in standard lengths and thicknesses. When buying a countertop, choose one that is wider than you need because you will probably waste some of the width during the fitting process.



**1** **Singe marks and stains** can look unsightly, but are easily repaired if the countertop is solid wood.



**2** Sand the area back to the bare wood, making sure not to create a depression. Then use a cloth to remove all traces of dust and debris.



**3** Brush on two or three coats of a suitable oil, usually tung oil. After each coat remove the excess with a cloth, and wear latex gloves to protect your skin.

#### Treating wood with oil

Wood oil is a transparent finish that nourishes and protects wood, but it must be applied to unsealed wood to be effective. There are various types of oil, such as tung oil, that are well suited to countertops and food

preparation areas, as they are non-toxic. Danish oil and teak oil are good for hardwoods (especially outdoor furniture). Boiled or double-boiled linseed oils are quicker to dry and not as sticky as the raw oil.

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# Unblocking a trap

Traps are one of the most common areas where blockages can occur. A sink trap is shown here. “Snakes”—plumber’s augers with a coiled metal wire that can be rotated—can unclog many types of trap, but a sink trap usually needs to be dismantled in order for the blockage to be removed.



## Tools and materials

Bowl, bucket, old toothbrush, replacement washers

- 1 Undo the sink trap** by loosening the fittings at either end of the trap. Position a bowl beneath it to catch any water that may spill out.

## Traps and their uses

All waste systems require some form of trap. Traps have a U-shaped section that provides a barrier to separate fixtures from the drainage system. The shape of the design means that

whenever water is discharged, some remains in the U-section, and this creates the barrier that stops smells and bacteria from entering the house through the drainage system.





- 2 Lower the trap** away from the downpipe. The cause of the blockage may be immediately obvious.



- 3 Empty out the trap** and scrub the insides in a bucket of clean water. An old toothbrush is an ideal cleaning tool.

#### Different types of trap

Most traps are held in place by plastic compression fittings. It is important to plan the layout of your bathroom

fixtures in conjunction with the layout of plumbing pipes. From left to right, an S-trap and a P-trap are shown here.



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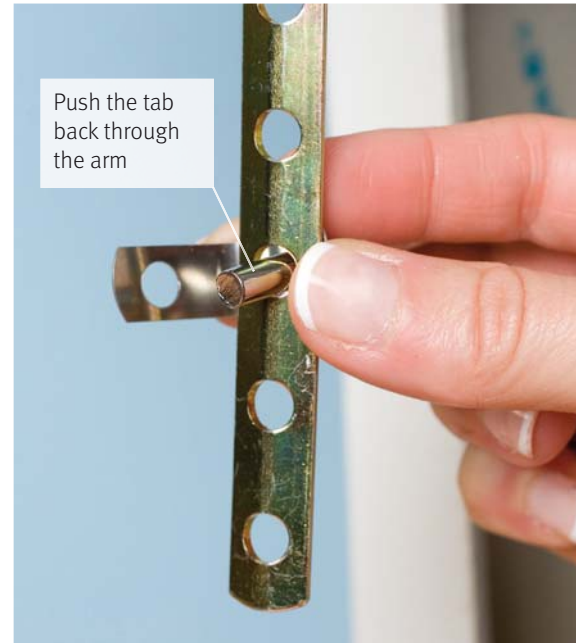
**Unblocking a trap**

Unblocking a sink drain

Replacing a toilet seat

# Unblocking a sink drain

Clogs in bathroom sinks are fairly common, and they usually occur somewhere within the pop-up assembly of the drain. The rod of the ball valve may be connected to the base of the plug, so the faucets may need to be disconnected from each other before you can lift the plug out.



## Tools and materials

No tools are required; these steps can usually be done by hand

- 1 **Remove the spring tab** from the drain plug adjustment arm to disconnect it.

## Pop-up waste systems

Commonly used in bathroom-faucet design, a pop-up waste system works using a small lever behind the faucet that moves the stopper or

plug. The lever is connected under the sink to an adjustment arm, which in turn connects to a rod that lifts and lowers the plug.





**2 Remove the ball valve** from the sink trap, which will free the plug and allow it to be lifted out.



**3 Lift out the pop-up plug**, remove the debris clogging the sink, replace the plug and reassemble the faucets.

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**Unblocking a sink drain**

Replacing a toilet seat

# Replacing a toilet seat

Older toilets seats can crack or become worn over time and may need to be replaced. A new toilet seat also is an inexpensive way to update a toilet.



## Tools and materials

Flat head or Phillips screwdriver

- 1 Lift up the lids** that house the bolts at the back the old seat assembly, and unscrew them from the nuts underneath.

## Buying a toilet seat

If you are buying a new seat for your toilet, first measure the existing seat. Measure the distance between the center of each of the two screws holding the seat in place at the back, and make a note of this measurement. Then

measure the distance from the middle of the back of the seat to the furthest front edge, and choose a seat of similar dimensions.





**2** Put the replacement seat in position and insert the new bolts.



**3** Screw the bolts in, holding the nuts underneath to stop them from turning, and check that the seat and lid are secure.

Drilling a tile without cracking it

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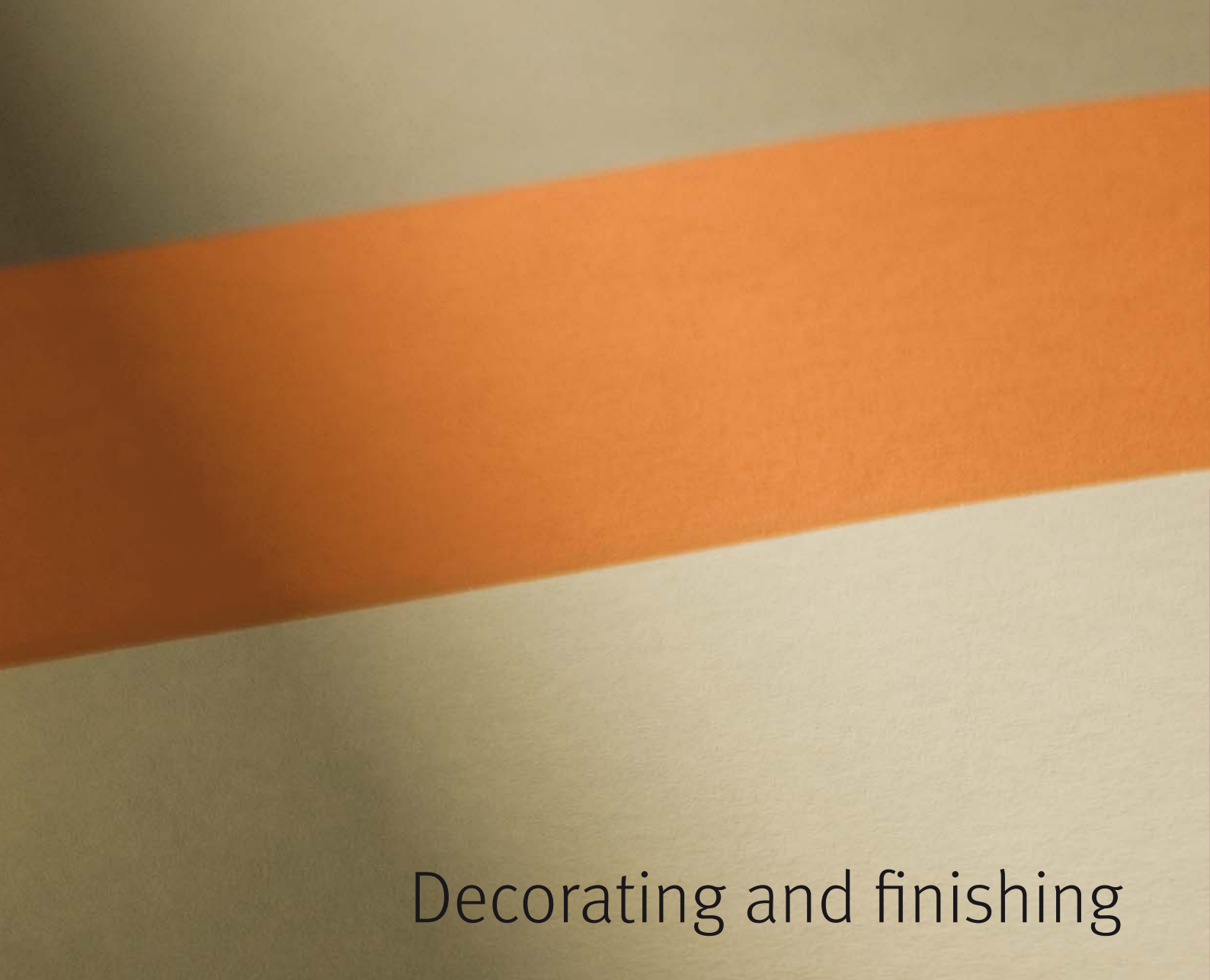
Repairing a wooden countertop

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Decorating and finishing

## Removing a **drip**

Many paints and finishes can be applied using either a roller, a paint brush, a paint pad, or a paint sprayer. Drips are caused by poor painting technique—usually overloading the chosen tool during application.

### Tools and materials

Scrapper, sandpaper, paintbrush, paint

### Loading a brush

Good brush technique is essential to achieve even coverage. To avoid overloading the brush, only dip it into the paint to one-third of the bristle

length for water-based paint, or one-quarter of the bristle length for oil-based paint. Then, scrape off any excess on the rim of the container.



**1 Drips may look** unsightly but they can easily be removed with a scraper and some sandpaper.





**2** Use a **scraper** to scrape back the paint drips. Be careful not to damage the surface underneath.



Do not use sandpaper that is too coarse

**3** Using a **fine grade** of paper, sand the area to a smooth finish. Repaint the sanded area.

#### Removing a drip

Removing wrinkled paint

Removing brush marks

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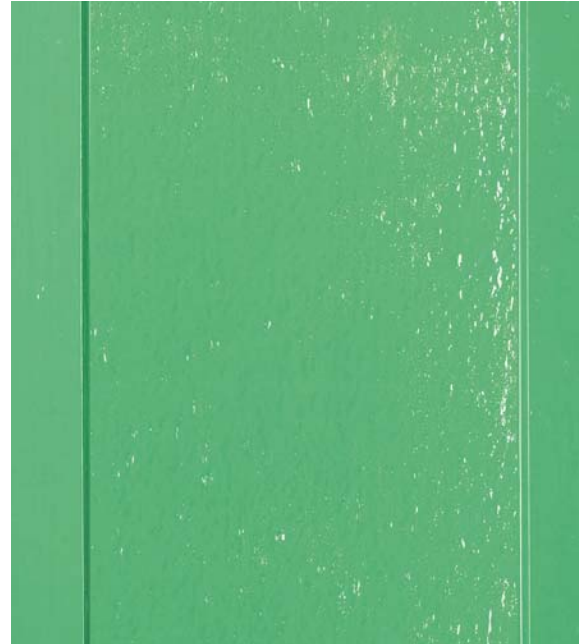
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# Removing wrinkled paint

A wrinkled effect is created by painting successive coats too quickly, and not allowing adequate drying time. It can also be caused by temperature extremes while the paint is drying or by applying a heavy coat of paint.



## Tools and materials

Heat gun or a chemical stripper, scraper, sandpaper, paintbrush, paint

**1 This problem requires** stripping, sanding, and repainting in order to achieve the desired finish.

## Working safely with a heat gun

Take great care removing paint with a heat gun. Wear eye protection, and a respiratory mask, and gloves. Take all other precautions that are advised by the tool's

manufacturer. Do not hold the gun over the wood for too long, to avoid the risk of scorching it or even setting it on fire.



**2 Strip paint completely** from the affected surface using a scraper, a heat gun or a chemical stripper.

#### How a heat gun works

A heat gun softens and blisters paint, and therefore makes it much easier to remove the old paint from the wooden surface.



**3 Sand down the area** with sandpaper and repaint. You could also use a sanding block (see below).

#### Making a sanding block

You can make a sanding block by folding sandpaper around a squared-off block of wood. It is easy to grip, and each side has a sanding surface.



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# Removing brush marks

Poor application technique can cause prominent brush marks on a finished painted surface. This problem can occur on all surfaces. In order to avoid brush marks, work slowly and carefully. Also, high-quality application tools are essential for an even paint finish.



## Tools and materials

Sander, cloth, paintbrush, paint, wood stain

**1** **Obvious brush marks** in different directions can make surfaces look uneven and poorly finished.

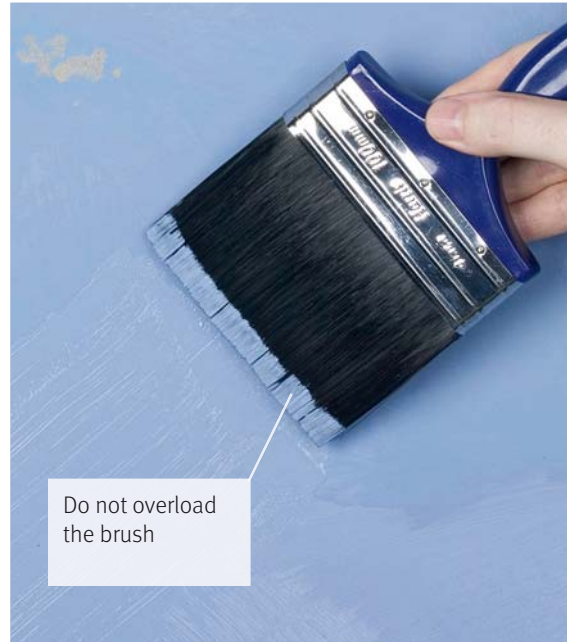


## Good painting technique

Most paints, especially if they have a sheen or are oil-based, require “laying off” to remove tool impressions from the finish. To do this, glide the unloaded painting tool very lightly

over the wet paint, just touching the newly coated surface. The principle of laying off is the same for rollers and, to a lesser extent, for pads.





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**2** Machine-sand the area with a palm sander, applying light pressure. Wipe the area clean of dust with a damp cloth.

**3** Repaint the area, keeping in mind the laying off technique described opposite. If using a natural wood finish, take care to apply stain with the grain.

### Machine palm sanders

This is a small tool, which often has an orbital action, for use on small wooden surfaces or in awkward tight corners.



# Improving poor coverage

Poor coverage can be caused by painting in a not well-lit area or by applying the wrong number of coats of paint. Sometimes this problem combines with prominent streaks in the paint caused by paint buildup on roller edges during application.



## Tools and materials

Sandpaper, roller, paint

**1 Poor coverage results** in a patchy appearance, as shown above, therefore the surface needs to be repainted.



## Grades of sandpaper

Sandpaper grading is based upon the number of abrasive particles per square inch that make up the sandpaper. The more coarse the grit, the lower the number of particles. Sandpapers are commonly

graded as coarse (40–60 grit), medium (80–120), fine (150–180), very fine (220–240), extra fine (280–320), and super fine (360 and above). Sanding with progressively finer grits leaves a smooth finish.



**2 Sand the area** in order to remove any paint ridges that have been created by roller edge trails.



**3 Recoat the area** using the correct number of coats for the surface, remembering to “lay off” the area (see p.78).

**Choosing the best roller sleeve**

To avoid poor coverage, it is advisable to use good quality rollers. The best roller sleeves are made of pure sheepskin. Other sleeve materials are available, but may produce a rough finish.



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# Replacing grout

Discolored or deteriorating grout can be replaced in order to brighten a tiled finish and reinstate waterproof properties. Pay particular attention to the grout you purchase, as some are specifically designed for bathroom applications.



## Tools and materials

Grout raker, vacuum cleaner, grout, grout spreader, sponge

- 1 Remove the old grout** from the joints using a grout raker, taking care not to damage the tile edges.

## Using the grout raker

A grout raker is the best tool for removing old grout. It is fitted with a thin grit-edged blade that may be replaced when worn down.





**2 Vacuum out the joints** to remove dust and all the old grouting, before applying the new grout.

#### Filling the joints

A grout spreader's rubber blade presses grout into the gap between the joints, and its straight edge limits overspill onto the tiles.



**3 Use a grout spreader** to press the grout into the joints between the tiles, then wipe off any excess grout, while it is still wet, with a sponge.

#### Finishing the grouting

To create a smooth, neat finish, run a grout shaper along the grout after it has been applied.



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# Reviving tired grout

Where grout has discolored, but is still in good physical condition, a simple cleaning with professional-grade tile and grout cleaner can be used to restore it to a clean, bright color. Sealing the grout will help extend the life of the grout.

## Tools and materials

Sponge, tile and grout cleaner, grout reviver, cloth

## What is grout cleaner?

Grout cleaner is a gritty, paint-like substance that is applied over grout to improve its appearance. It usually comes in a tube with a built-in applicator consisting of a circular sponge with a hole through its center.



- 1 Wash down the tiled surface thoroughly** with a clean sponge, brush or cloth. Rinse with water.



**2** When the grout is dry, generously apply the grout cleaner along the joints of the tiles.



**3** Check the manufacturer's guidelines to see when to wipe off the excess grout cleaner. Use a damp cloth.

**Preventing grout discoloration**

Use a liquid sealant to stop the grout from discoloring and keep the finish clean. Leave grout to dry fully before applying this sealant.



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# Replacing latex caulk

Junctions between tiles and other surfaces, such as a bathtub or shower, are normally sealed with latex caulk, which can deteriorate over time. Once a seal begins to allow water penetration, it must be replaced.



## Tools and materials

Window scraper or sealant remover,  
masking tape, caulk

**1 Scrape away the old sealant.** A window scraper is ideal, or use a proprietary sealant remover.

## Where to seal

Apply a waterproof seal to any area where tiling meets a tub, sink, or kitchen countertop, and around the outer edge of a shower cubicle panel.



## Health and safety

Always follow the manufacturer's instructions when using an adhesive or sealant, because the chemicals involved can be dangerous if not used correctly.





- 2** Stick masking tape  $\frac{1}{8}$  in (3 mm) from each side of the joint. This ensures that the sealant will have straight edges.



- 3** Apply latex caulk along the gap, and smooth with a wetted finger. Remove tape and smooth again if necessary.

#### Applying sealants and adhesives

Sealants and adhesives are available in cartridges that load into standard dispensers. Squeezing the trigger releases a bead of the material.



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# Replacing a broken tile

You will want to replace broken or cracked tiles to maintain the appearance of a room. It is also important to replace them because damaged tiles can lead to leaks in the room, which can damage walls and floors.

## Tools and materials

Grout raker, drill, gloves, goggles, mallet, chisel, scraper, tile adhesive, adhesive spreader, spacers, grout

## Purchasing tiles

When possible, buy tiles of one color with the same batch number. Shuffle tiles of the same color from different boxes, so that any color variation will not show if a tile has to be replaced.



- 1 Use a grout raker to remove the grout from around the edges of the broken tile.



Do not drill into the surface below the tile

**2 Check for electricity or water** supplies using a detector. Weaken the surface of the tile even further by drilling a number of holes through it.



**3 Use a mallet** and a cold chisel to remove sections of the broken tile. Be sure to wear gloves and protective goggles.

Continued ▶

### Types of tiles

Most tiles are ceramic—they are made of clay, have a glazed, smooth surface that is easy to clean, and are durable. Glazes are generally colored to provide decorative options. Some glazed tiles are prone to

crazing, which may affect their waterproofing properties, making them unsuitable for bathrooms and showers. Natural stone is porous, so in areas where there is water, such as bathrooms, waterproof sealant must be used.

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- 4** Using a scraper, remove the old adhesive from the wall. Apply tile adhesive to the back of a replacement tile using a spreader.



- 5** Position the tile, checking that it sits flush. Use spacers to maintain grout gaps. When dry, remove the spacers and grout the joints.

#### Using plastic spacers

These plastic crosses are placed between tiles to provide equal-sized joints. The size of the spacer determines the thickness of the joint.



# Repairing a shower cubicle

If water seepage has caused the wall around a shower cubicle to decay, tiles will start to become loose. The steps here are for repairs to a stud wall. If the studs themselves are decaying, you will need to remove sections of the wall and rebuild as required. Always remove a larger section than the damaged area.

## Tools and materials

Scraper, drywall saw, claw hammer, heater, water-resistant board, caulk, caulk gun, fiberglass tape, tile adhesive, tiles, grout

## Preventing shower leaks

Leaking shower cubicles are a problem, and in most cases, the causes can be traced to poorly grouted tile joints and/or degraded caulk seals around the shower tray or screen. The junctions created by valves and pipes



**1 Use a scraper** to remove tiles and grout from the affected area, exposing a half-tile's width of sound drywall. Cut a line at this height using a drywall saw.

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are also susceptible to this problem, and it only requires a small section of grout or sealant to be missing for water penetration to cause problems. These areas should be checked regularly and resealed as required.

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Remove all the old fasteners from the stud

**2** Use the claw of a hammer to remove old fasteners. Leave studs exposed for a few days, to dry. A heater may speed up this process.



Accurately measure and cut the moisture-resistant board

**3** Cut a piece of cement-based, water-resistant board to size, and screw it onto the studs.

#### Uses for cement-board (concrete board)

Cement-board is not drywall, but has similar properties and uses. It is a strong, moisture-resistant board, often used as a subfloor, beneath ceramic tiles, or as a backing for wall tiles. Board thicknesses and sizes vary.

Green board, a moisture-resistant drywall, also is often used in bathroom applications.





- 4 Seal around the edges** of the board with latex caulk. For the best result use a caulk gun.

#### Using fiberglass tape

Because of its honeycombed design and strength, fiberglass tape is ideal for reinforcing the seam between the old and new boards. It is also waterproof, making it perfect for bathroom repairs.



- 5 Use tile adhesive** to attach fiberglass tape to the joint between the new and old boards. Then retile and regROUT the area. Re-apply latex caulk to seal the joints.

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# Repairing tongue-and-groove paneling

Tongue-and-groove boards interlock, which makes it difficult to repair a small area. If not done carefully, trying to remove one damaged board would mean damaging all the boards. Use the following method to carefully remove and replace just the damaged board.



## Tools and materials

Drill, drywall saw, workbench, chisel, new board, hammer, nails, filler, sandpaper, paintbrush, paint

- 1 Drill a hole** close to one edge of the damaged board, then insert a drywall saw into the hole and cut all the way down the joint between the boards.

## Removing paneling

Where the board crosses studs or nailing strips in the wall, it may be easier to use a hammer and chisel to cut the board. If the board is very thick, it may be easier to

remove the tongue with a saw rather than with a drywall saw. When a natural-wood finish is needed, consider using adhesive to attach the board rather than nails.





**2 Use a chisel** to lever out the damaged section of board. Be careful not to damage neighboring panels.



**3 Cut a new** section of board to fit. Safely secure it to a workbench and use a hammer and chisel to remove the tongue so that you can fit it in place.

Continued ▶

**Understanding chisels**

Chisels are general-purpose woodcutting tools, but are used mostly to remove the waste from joints or to trim them to size. The size of a chisel

refers to the width of its cutting edge. Although a vast range of chisels is available, a small selection should enable you to tackle most DIY tasks.



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- 4 Nail the new** board in place, attaching it through its face, because you no longer have the interlocking tongue for blind nailing.



- 5 Fill the fastener holes** with wood filler, and sand when dry. Then decorate the board to match the surrounding surface.



#### What type of nail to use?

The most basic of fasteners, nails are essential for most construction jobs. Common nails for general use are available in many sizes—choose one that is at least three times longer than the depth of the

thinner material being nailed. For the above job oval wire nails have been used, as the oval cross-section reduces the splitting of the wood. A nail set may be needed to drive the nails below the panel's surface.

# Replacing a section of baseboard

If a short run of baseboard is damaged, the simplest option may be to replace the entire length. On a longer run, however, it is often worthwhile to cut out and replace just the damaged section.



## Tools and materials

Pry bar, wooden blocks, pencil, level, miter box, panel saw, nails, hammer, wood glue, construction adhesive, baseboard, wood filler or spackle, paintbrush, paint

## Pocket level

Designed to be used where a carpenter's level is too long, or complex, a pocket level is perfect for this type of job. Some models feature a magnetic face which can be stuck to metal.



**1 Pry the damaged section** from the wall and place shims between the baseboard and wall. Draw guide lines on either side of the damaged area.

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- 2** Using a **miter box** and panel saw, carefully cut along each guide line, using short, accurate strokes.

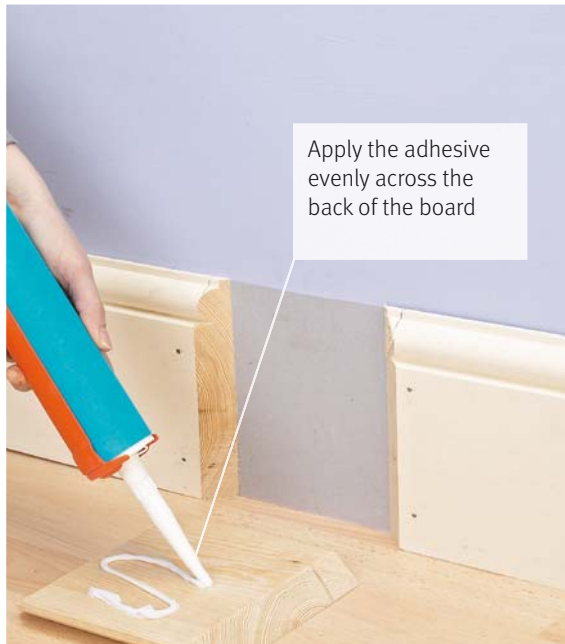


- 3** Remove the **wood shims** from behind the baseboard and attach the existing baseboard to the wall with nails. Cut a new piece to fit.



#### **Sawing with a miter box**

A miter box has channels to guide a saw (usually a tenon saw) through material at precisely the correct angle for a mitered joint—45 degrees.



**4** Apply wood glue to the mitered ends of the new section of baseboard, and apply construction adhesive across the back.



**5** Position the board, allowing the glue and adhesive to fasten to the baseboard, and wall. Strengthen the mitered ends with finish nails, and paint the surface.

#### Matching existing baseboard

One way to get a match for long sections of baseboard is to cut medium-density fiberboard (MDF) to size and use a router-cutter to create a profile that matches the shape of the undamaged baseboard. Another option is

to attach decorative moldings to the top. For an entire room, a close match to that in the rest of the house will pass unnoticed because the two designs are not sitting side by side.

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# Repairing an **outside corner miter**

Outside corner miter joints can sometimes crack open and become unsightly due to changing temperatures or the effects of an older house settling. In some cases, joints fail because the joint was not properly glued and secured in place when it was installed.



The miter joint has come apart

## Tools and materials needed

Drill, wood glue, hammer, finish nails or thin screws, wood filler, paintbrush, paint

- 1 Drill pilot holes** (see p.36) through the top and bottom of the joint, making sure that you drill into both mitered edges of the corner.

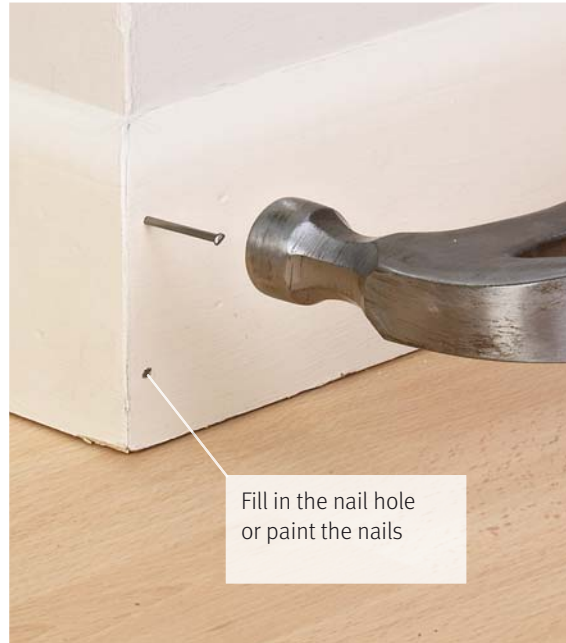
## Making a miter joint

Miter joints are made by joining two surfaces at an angle other than 90 degrees (usually at a 45-degree angle) to form a 90-degree corner angle. Make sure you cut the material in the correct direction when mitering inside

and outside corners. The miter joint is a popular method of turning a corner, as it is easy and attractive, but outside miter joints may become weakened. However, they can easily be repaired or strengthened.



**2** Apply wood glue to the cracked joint, and wipe away any excess glue with a damp cloth.



Fill in the nail hole or paint the nails

**3** Hammer the finish nails through the pilot holes to secure the miter in position or, for larger base boards, use thin-gauge screws. Fill the fastener holes and paint over to match existing trim.

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# Repairing a laminate floor

Laminate floors are made to withstand the normal wear-and-tear of daily life. When the flooring is damaged, it takes more effort to repair than simply sanding like a real wood floor, since the laminate is a thin veneer. A small dent or scratch can be repaired using a laminate repair compound kit, as shown here.



## Tools and materials

Scissors, repair compound kit, plastic scraper, metal scraper

**1 Cut off the nozzles** on the two-part syringe. Squeeze the repair compound into a tray, where the two elements will mix together.

## Laying laminate flooring

Most laminate and real wood floors are floating tongue-and-groove floors that click or snap together. Before laying the floor boards, you will need to lay a foam pad and possibly plastic

sheathing. Where possible, lay flooring before installing baseboard so that it can cover the perimeter expansion gap.







**2 Press the repair compound** into the damaged area using the plastic scraper included in the repair kit.



**3 Use a metal scraper** to remove any excess compound from the area before it has time to dry.

### Using repair compounds

Repair compounds are available from specialty manufacturers, and will match almost every type of laminate surface. Manufacturers have differing conditions of use, so read their instructions carefully.

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# Repairing damaged carpet

Damage to carpet can be difficult to remedy. However, as well as using cleaners, specks of paint can be removed with a craft knife, and a small area of damage can be replaced with a patch, if you have offcuts of the carpet.



## Tools and materials needed

Scissors, utility knife, metal lid or similar object, spray adhesive

- 1 Cut a patch** of carpet to a size that is larger than the area that needs to be replaced.



## Choosing carpet

Carpets are generally burlap- or foam-backed, and vary in quality, depending on what they are made of. Most brands have a grading system for suitable use, such as for bedrooms

or for heavier-trafficked hallways. Natural-fiber floor coverings such as jute or coir are also available, and also vary in durability.



**2 Find a metal lid** or other circular object slightly larger than the repair area. Cut around it, down through the patch and the carpet below.



**3 Remove the cut circle** of damaged carpet, and replace it with the circle of new carpet. You may wish to spray adhesive on to the back of the new carpet patch.

### Features of the utility knife

Heavy-duty utility knives are designed for cutting all types of carpet and vinyl. Depending on the model, the blade will be adjustable for depth, and when it becomes dull, it can either be replaced or the end

may be snapped off from the rest of the blade. It should also have a locking device to hold the blade in place.



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# Patch-repairing vinyl flooring

Although durable, vinyl can be damaged by sharp objects or by heat, such as a cigarette burn. Re-covering an entire floor is expensive, but where vinyl has a pattern, such as “tiling,” it can be used to aid the repair process. If you use this technique, be sure that the junctions between the vinyl patch and existing vinyl are firmly attached. Otherwise it may become a tripping hazard.

## Tools and materials

Scissors, duct tape, utility knife, double-sided tape, seam roller

## Laying sheet vinyl

Durable and easily cleaned, vinyl is often used in bathrooms and kitchens. To increase its waterproof qualities, run a bead of sealant around the edge.



- 1 **Cut a section** of vinyl, to a size that is larger than the damaged “tile” area. Tape this piece over the damaged area, making sure that it is aligned with the pattern.



**2 Use a utility knife** to cut through both layers of vinyl, using the “tile” edge as a guide line.



**3 Remove both sections** of vinyl. As you lift out the damaged section, the cut shape will be revealed underneath.

Continued ▶

### Cutting irregular shapes

For irregular shapes such as the outline of a door casing, a profile gauge gives the best guide line. If possible, place its corner where the tile’s corner will go; or measure the gap from the corner to profile

gauge. Push the gauge into the irregular edge, keeping it flat on the floor and butted up completely into the irregular edge.



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Butt the double sided tape to the edge of the vinyl

- 4** Apply double-sided tape around the edges of the revealed section of floor.

#### Precision cutting flooring

A vinyl cutter is a precision tool for cutting vinyl flooring. When cutting larger pieces, it might be better to use one of these, rather than a utility knife.



Make sure the vinyl section is level with the floor

- 5** Position the new vinyl section. Press down its edges, as well as those of the remaining old section. A seam roller is ideal for this.

#### Using a seam roller

More often used to gently press wallpaper seams to ensure good adhesion, a seam roller is also ideal for installing newly placed patches of vinyl.



# Replacing a **broken floor tile**

Floor tiles can get cracked due to wear and tear, or through damage if a heavy object is dropped on them. Replacing a single tile is more cost-effective than re-tiling an entire floor. Wear goggles while drilling into the tile, in case any shards fly toward you.



## Tools and materials

Grout raker, drill, goggles, gloves, club hammer, chisel, scraper, level, tile adhesive, grout, sponge

**1** **Remove grout from around** the edge of the tile. A grout raker is perfect for this process.

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## Buying floor tiles

Hard tiles for floors are available in various sizes and materials. When tiling a floor, buy about 10 percent more tiles to take waste into account.



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**2** Drill a series of holes into the broken tile. This helps to break it up, making it easier to remove.



**3** Remove the broken tile with a cold chisel and club hammer, then scrape the old adhesive off the floor surface.

#### Testing adhesive coverage

If you are laying an entire floor, rather than just replacing a broken tile, apply the adhesive to the flooring, but not to the tiles. Press tiles down just hard enough for the adhesive to make contact with the entire back face of the

tile. Tap the tile to test—if there is a hollow sound, some areas are not in contact. Remove the tile, and add more adhesive to the hollow areas. Drying time depends on the adhesive, the subfloor, temperature, and the tiles.





Lower the tile gently into position

**4** Apply adhesive to the back of the new tile and position it. Use a level to make sure it sits flush with the surrounding tiles.



**5** Allow the adhesive to dry, then grout the new tile. Clean off any excess with a damp sponge.

### Ensuring correct alignment

The carpenter's level contains three vials, and is the most versatile level available. The vial in the middle determines the horizontal level, while the end vials determine the vertical level (plumb). One of the end

vials may be adjusted when it is necessary to measure particular angles. These levels are available in various sizes, ranging from 8 in (200 mm) to 4 ft (1.2 m) in length.



Removing a drip

Removing wrinkled paint

Removing brush marks

Improving poor coverage

Replacing grout

Reviving tired grout

Replacing latex caulk

Replacing a broken tile

Repairing a shower cubicle

Repairing tongue-and-groove paneling

Replacing a section of baseboard

Repairing an outside corner miter

Repairing a laminate floor

Repairing damaged carpet

Patch-repairing vinyl flooring

Replacing a broken floor tile





Outdoor repairs

# Replacing a broken stone

Stone pavers can become unstable or may crack due to poor installation technique, frost, or a fault introduced during manufacturing. In whichever case, the paver needs to be lifted and relaid. Laying pavers on a bed of sand is a more straightforward procedure than that shown here, where they have been laid on mortar.



Block of wood provides leverage

## Tools and materials

Gloves, goggles, pry bar, block of wood, lump hammer, chisel, trowel, mortar, new stone paver, level, rubber mallet

- 1 Use a pry bar** to lift the old paver. If it is set in concrete, break it with a lump hammer and a chisel. Wear protective goggles and gloves.



## Maintaining paving

Paving, along with other exterior surfaces such as decking, can become covered in algae; this is slippery and potentially dangerous. Pressure-washing these areas at least once or twice a year

should keep the problem at bay. In some cases, particularly in damp or shaded areas, fungicidal washes may be useful to prevent algae from quickly regrowing.



### Replacing a broken stone

Repairing a loose fence panel

Leveling brick paving

Reseating a capping stone

Relaying a gravel path

Repairing concrete

**2** **Chip away** the old mortar with a chisel and lump hammer, and remove the debris from the bed.

**3** **Lay a new bed** of mortar for the replacement paver, leveling it off with a trowel.

Continued ►

#### Using a lump hammer (2-pound hammer)

The lump hammer is the heaviest one-handed hammer. With a large striking face, it is commonly used with either a bolster chisel, or a cold chisel, to split bricks or pavers.





- 4** Position the paver, checking that it is level with those around it. Tap it in to place with the rubber mallet.



- 5** Repoint the new paver with mortar, or a dry mix as required, using a pointing trowel.

#### Ready-mixed mortar

Mortar is a mixture of cement, sand, and sometimes lime, used as an adhesive for masonry and constructional members, such as fence posts. Ready-mixed mortar comes in bag sizes appropriate

for small-scale repair jobs: mortar mix is a general-purpose mortar; stone mix is generally used for laying paving; concrete mix is a general-purpose concrete mix, and post-mix is used for erecting fence posts.

# Repairing a loose fence panel

Rotten wooden fences are generally best replaced, but damaged sections can be strengthened using clips or brackets. If a joint is loose, consider inserting wedges around the joint to strengthen it.



## Tools and materials needed

Hammer, wedge

**As a short-term measure,** stabilize loose fence panels by knocking wooden wedges into the joints with a hammer. Here the gap between an arris rail and a fence post is being wedged.

## Securing an arris rail

Mending the fence with a wooden wedge, as above, should only be a temporary solution. Fitting an arris bracket (right) is the long-term solution, as this bracket

is designed especially for this popular style of fence joint. When in place, the bracket connects the rail securely within the post.



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# Leveling brick paving

Brick paving can often sink if it has not been laid correctly. Because it is generally laid on sand, rectifying the problem involves lifting the sunken blocks and reseating them on more sand.



## Tools and materials

1 x 2 strip, chalk, flat head screwdriver, trowel, kiln-dried sand, brush

- 1 Hold a straight 1 x 2 strip (or level)** across the area, and mark with chalk any bricks that do not sit flush with the underside of the wood.



## Pavers and edging tiles

Pavers (top) are often brick-shaped, and common bricks may be used as pavers. There are many different styles of paver that can be used for landscaping. Most designs of hard

landscaping, such as paths and patios, are improved by a decorative retaining edge (bottom). If you are laying any edging next to a lawn, lay it slightly lower so that you can mow over the top.





- 2 Pry up the bricks** with an old flat head screwdriver. Add more sand with a trowel, then replace the bricks and check that they are level.



- 3 Reposition the bricks**, checking again that they are level, and brush kiln-dried sand into the joints.

### Laying pavers and slabs

The pattern chosen for laying slabs or pavers is very much a personal choice. Manufacturers often provide brochures showing the various options. You can buy

cut or curved pavers to create alternative designs, and you may choose to pave the area with any combination of pavers, slabs, gravel, and cobbles you wish.

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# Reseating a capping stone

As capping stones sit on the top of exterior walls, and are bound by just one layer of mortar below, they may become loose over time. It is important to reseat capping stones to protect the wall from water penetration and to retain its overall integrity.



## Tools and materials

Gloves, goggles, sledge hammer, chisel, bricklaying mortar, level, trowel

- 1 **Remove the loose stone** from the top of the wall. It will probably pull free.

## How capping stones work



Also known as coping stones, capping stones are positioned along the top of a wall, preventing water from penetrating the brick- or

stonework of the main structure. They are usually made of concrete or natural stone, and feature one or more sloping surfaces that allow rain to run off and away from the wall.



**2** **Chip off the old mortar** from the top of the bricks with a sledge hammer and chisel. Mix up some mortar, and lay it across the top of the brick course.



**3** **Reposition the capping stone** using a level to check its position. Repoint the joints to leave a clean finish.

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# Relaying a gravel path

An annoying, but common, problem with gravel paths is weeds. They can be controlled by weedkillers, but a longer-lasting solution is to use a weedproof membrane.



## Tools and materials

Shovel, polyethylene or polypropylene sheets, weed membrane, utility knife or scissors, rake

- 1 Move the gravel** out of the path. Pile it up alongside the path, ideally on polyethylene or polypropylene sheets.



## Spades and shovels

Generally, spades (top) are lighter than shovels and have straighter, sharper blades, making them well suited for digging into surfaces. The side edges of a shovel's blade are curved,

making it more suitable for lifting large loads. A shovel (bottom) is ideal for lifting loose material, such as gravel, and perfect for loading cement mixers with sand and cement.



Fit the membrane accurately

- 2** Roll out a weedproof membrane along the path base, cutting as required. Overlap joints by at least 4 in (100 mm).



- 3** Move the gravel back onto the membrane, and distribute evenly using a rake.

#### How does a weedproof membrane work?

Easy to size with a utility knife or scissors, the layer of weedproof membrane will stop weeds from taking root in the path base. It also allows water to drain through to the base, but not back up to the gravel.

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# Repairing concrete

Hairline cracks in concrete should not be a problem, but larger cracks should be filled. If you have a crack in your foundation, always check for moisture, as the crack could be a sign of a bigger problem. A simple repair to the edge of a paver is shown here.

## Tools and materials

Brush, concrete adhesive, plank of wood, bricks, concrete, trowel

## What is concrete?

Like mortar (see p.116) concrete is made of a mixture of aggregates and cement. However, concrete contains coarser aggregates, making it suitable for foundations and hard landscaping.



Remove debris to provide a secure surface for the adhesive

- 1 **Remove loose debris** and dust out the hole as necessary. Apply some concrete adhesive to the rough concrete surface.



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**2 Use bricks** to support a section of plank that will hold the concrete in place while it cures. Mix the concrete as the manufacturer recommends.

**3 Fill the crack** with concrete until it is level with the surrounding area. Allow the concrete to cure before removing the bricks and plank.

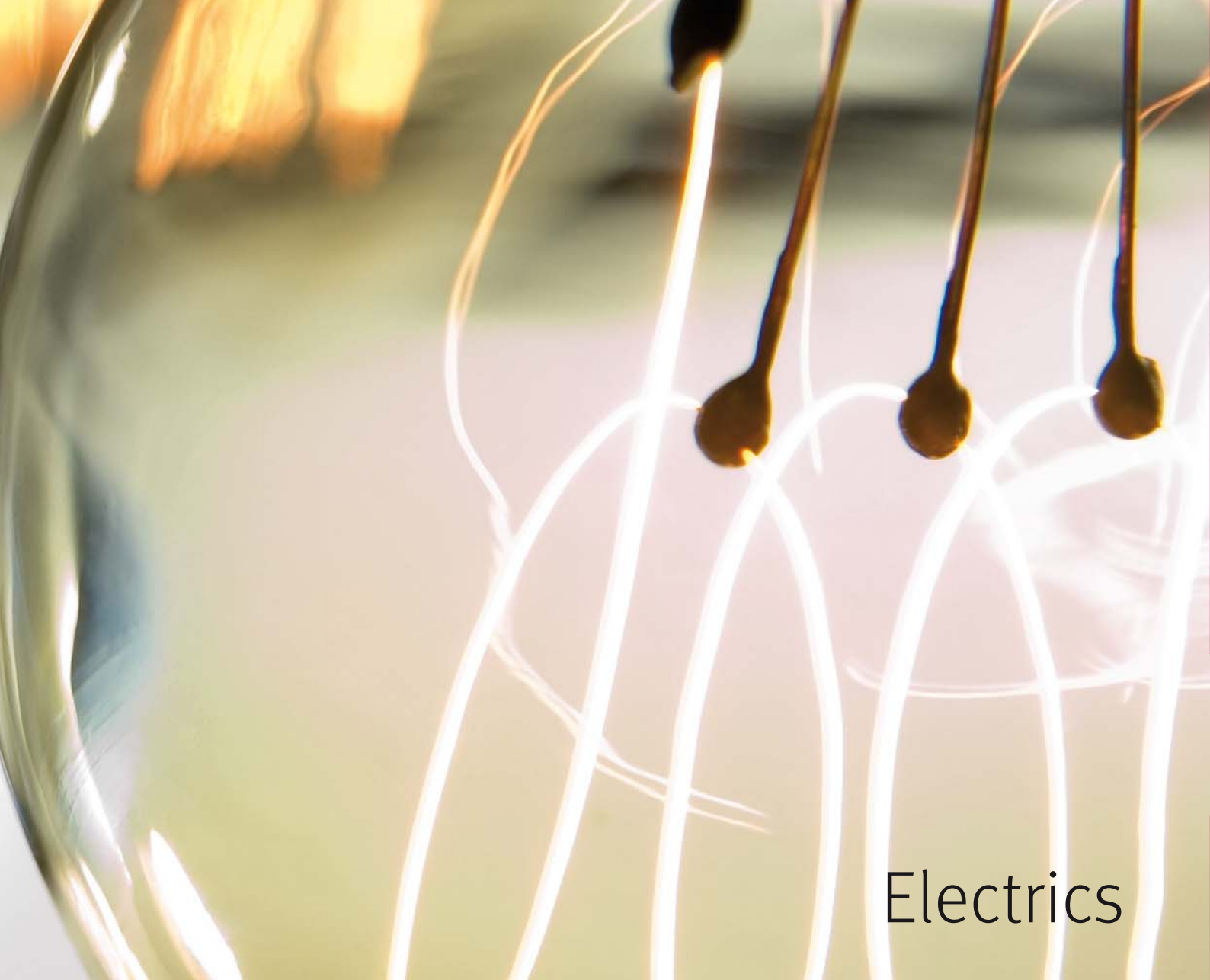
#### Which adhesive to use?

Many repair projects require some kind of adhesive or sealant, and it is important to use one that is most appropriate for any particular task. Concrete bonding adhesives are usually in thick white liquids that can be

used as an all-purpose adhesive for most every concrete repair. Without using a bonding agent, the new concrete will have trouble lasting. If you have a large concrete repair, you may need to use steel bars or pins.







Electrics

# Removing a broken light bulb

Don't forget that a broken bulb can still receive live current, so make sure it is switched off before you start working. You may also want to wear leather gloves and eye protection, as well as a head covering, if working on an overhead fixture.

## Warning

- Remember to always turn off the power supply to the individual lighting and power circuits you are working on before starting any electrical repairs.
- Only use tools which are insulated, to protect against electric shocks.
- Always check with local codes before attempting any electrical DIY project.

## Tools and materials

Tarp, digital multi-tester, insulated needlenose pliers

## Digital multi-tester

Also known as a voltage tester, a digital multi-tester is designed to test the voltage and wire continuity in outlets, and indicates if there is a problem in the circuit.



**1 The remaining parts of the broken bulb** need to be removed. Put down a tarp to catch any pieces of glass that fall down as you work.



**2** Use a **digital multi-tester** to double-check that the correct electrical circuit has been disabled, and that there is no longer a live power supply to the light fixture.



**3** Insert **open pliers** into the broken base, and exert force against the insides of the bulb base as you rotate the pliers counterclockwise to extract it.

Removing a broken light bulb

Changing a circuit in a breaker

Changing a receptacle to GFCI

Replacing a broken receptacle

# Changing a circuit in a breaker

Remodeling projects may require updating or replacing breakers to serve your home's new needs. If you feel uncomfortable about completing the task, consult a professional.

## Warning

- Remember to always turn off the power supply to the individual lighting and power circuits you are working on, before starting any electrical repairs.
- Only use tools which are insulated, to protect against electric shocks.
- Always check with local codes before attempting any electrical DIY project.

## Tools and materials needed

Insulated screwdriver, digital multi-tester, breaker

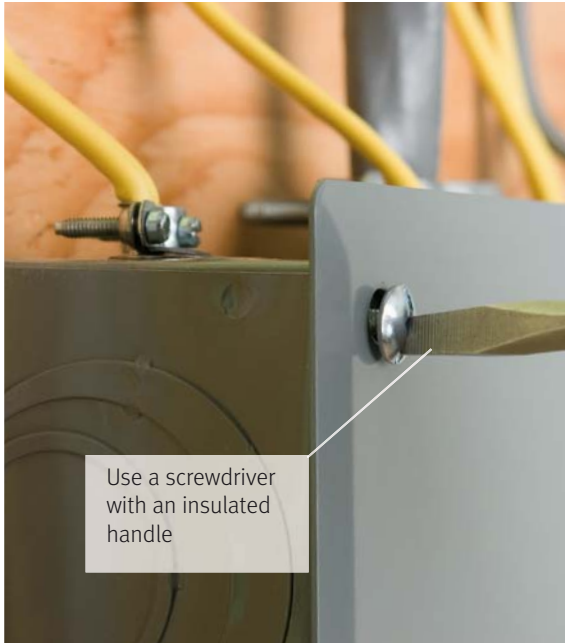


**1 Turn off the main circuit breaker** in the breaker box.

## Circuit breakers

The utility company usually has a meter outside your home to check how much electricity you have used; the circuit breaker panel is wired from this meter and mounted inside your home. All circuits in your home have

a circuit breaker in this box. Having more than one circuit in each room may help to provide light if there is a ground fault interruption on one circuit in the room.



Use a screwdriver with an insulated handle

**2 Undo the screws** on the cover of the circuit breaker box.



**3 Using a digital multi-tester**, determine if the circuits are live.

Continued ►

### Circuit breaker circuits

The circuit breaker unit contains individual circuit breakers, housed in rows and columns. The circuit breaker unit has a main breaker switch that can control all of the breakers at once.

Removing a broken light bulb

Changing a circuit in a breaker

Changing a receptacle to GFCI

Replacing a broken receptacle



**4** Locate the affected breaker switch and ease it out with a screwdriver. The switch must be all the way in the off position, otherwise the circuit could still be live.

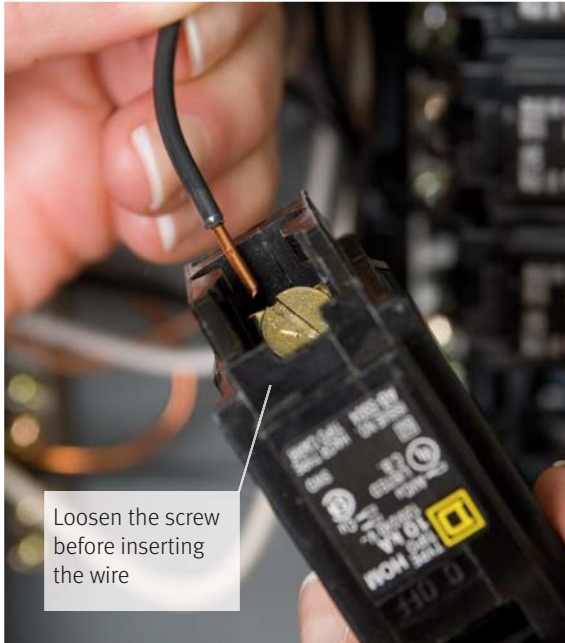


**5** Lever the old breaker right out and unscrew the fastener to disconnect the black wire.

#### Adapting a circuit for more power

Most electrical needs require a 120-volt circuit. Sometimes you will need to adjust circuits or add a 240-volt circuit to accommodate cooking ranges, clothes dryers, or other

appliances. Unlike the 120-volt circuits, 240-volt circuits fill two spaces on your breaker box. The circuit will have three wires: one red, one black, and one green or copper.



Loosen the screw  
before inserting  
the wire

**6** Connect the black wire to the new breaker and tighten the screw onto it.



**7** Clip the new breaker back into the box, first making sure the breaker switch is in the off position.

Continued ►

Removing a broken  
light bulb

Changing a circuit  
in a breaker

Changing a  
receptacle to GFCI

Replacing a broken  
receptacle

## Changing a circuit in a breaker



**8** Put the cover back on the circuit breaker box and screw it securely in place.



**9** Flip the breaker switch to the on position, and then turn the main circuit breaker back on.



Removing a broken  
light bulb

Changing a circuit  
in a breaker

Changing a  
receptacle to GFCI

Replacing a broken  
receptacle

# Changing a receptacle to GFCI

Bathrooms, garages, and other areas of the home are required to have GFCI (Ground Force Circuit Interrupter) circuits. Installing GFCI at the receptacles makes it easier for you to reset the circuit without having to go to the panel box.

## Warning

- Remember to always turn off the power supply to the individual lighting and power circuits you are working on, before starting any electrical repairs.
- Only use tools which are insulated, to protect against electric shocks.
- Always check with local codes before attempting any electrical DIY project.

## Tools and materials needed

Digital multi-tester, insulated screwdriver, GFCI receptacle, GFCI tester



- 1 **Turn off the power** to the receptacle and test the receptacle to make sure no power is running to the outlet.

Continued ▶

## GFCI receptacles

GFCI receptacles have test and reset buttons. The test button pops out when a ground fault occurs. To reset a GFCI, press the reset button in. Test

them when they are found to be malfunctioning.





**2** **Unscrew the cover plate**, loosen the screws that hold the receptacle in the electrical box, and disconnect the wiring.



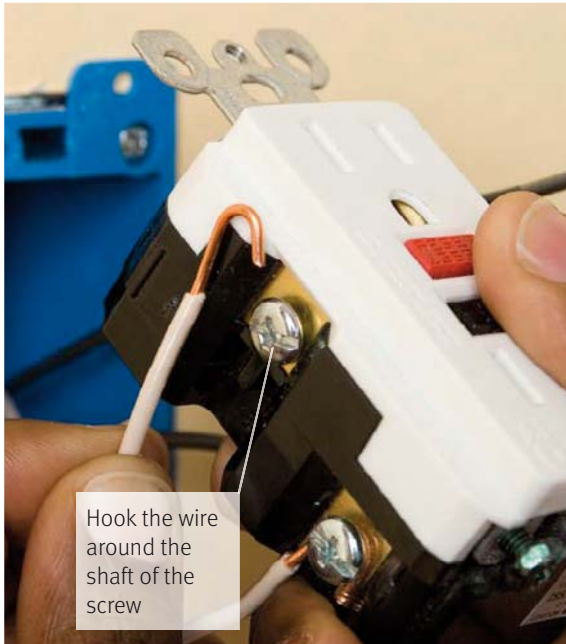
**3** **Connect the live wires** to the hot line terminal screw on the GFCI receptacle, once you have done a voltage test on the wires in the box.

### Surge protectors

Once you have plugged your delicate electrical equipment—such as computers—into a surge protector, it will protect it from voltage spikes and surges. Some surge protectors are designed

to trip and be reset, others will smooth out the voltage level output regardless of what level is input. The protector illustrated (right) plugs directly into the wall.





Hook the wire around the shaft of the screw

**4** Connect the white neutral wires to the white line terminal screw. Connect the ground wire to the green grounding screw.



**5** Screw in the receptacle and the cover plate, and use a GFCI tester to check that it will trip.

Removing a broken light bulb

Changing a circuit in a breaker

Changing a receptacle to GFCI

Replacing a broken receptacle

# Replacing a broken receptacle

Damaged receptacles and receptacle covers are fairly easy to replace if you do not plan to make any modifications to the receptacle, and are just doing a simple repair.

## Warning

- Remember to always turn off the power supply to the individual lighting and power circuits you are working on, before starting any electrical repairs.
- Only use tools which are insulated, to protect against electric shocks.
- Always check with local codes before attempting any electrical DIY project.

## Tools and materials needed

Insulated screwdriver, receptacle, receptacle cover



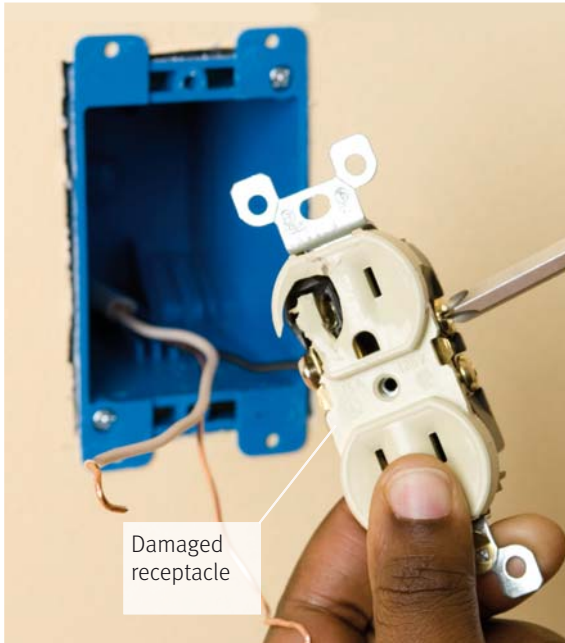
**1 Turn off the power** and undo the retaining screw on the receptacle cover.

## Wiring tools

You will need a range of special tools—such as a multi-purpose tool and a pair of wire strippers (right)—to cut wires and cords to length and to prepare the cores inside

for connection to wiring accessories. It is a good idea to store these tools separately from your ordinary ones so they are easy to find when you need them.





**2** Disconnect the old receptacle from the wires in the box and make a note of which wires were connected to which terminal.



**3** Attach the wires securely to the new receptacle in the same configuration, screw the new receptacle in place, followed by the new cover.

Removing a broken light bulb

Changing a circuit in a breaker

Changing a receptacle to GFCI

Replacing a broken receptacle





Plumbing and heating

# Temporary repair of a leak

If water is allowed to freeze in a pipe, it may lead to cracks or splits, which can cause a leak when the water thaws. Putty (as shown here) is only a temporary fix, and should be followed up with a longer-term solution as soon as possible.

## Warning

If your home uses gas, be especially careful before attempting any plumbing work. As with water pipes, gas pipes should have shut-off valves. Always check with your local building department before carrying out work on your plumbing.

## Tools and materials

Plumber's epoxy putty

## Plumber's epoxy putty

This is a hard-setting putty that usually comes in two parts—an epoxy resin and a hardener. Once the two parts are mixed the putty is workable for about 20 minutes, after which it sets rock hard. It is non-toxic, so is safe to



Check the pipe for the source of the leak

- 1 Shut off the water** after you have established where the leak is, and allow the pipe to dry before applying the putty.

use on pipes that carry drinking water, and will adhere to most materials, although you may need a special epoxy putty for some types of plastic.





**2** Mix two lengths of putty together in your hand. Make enough not only to cover the immediate area of the leak, but around it as well.



**3** Press the plumber's epoxy putty over the pipe to cover the leak, and wait for it to harden. Then turn the water back on and check for any further leaking.

Temporary repair of a leak

Temporary repair of a hole or crack

Replacing a sink sprayer

Repair using a slip coupling

Thawing a frozen pipe

Pipe repair using a compression fitting

Pipe repair using Teflon tape

# Temporary repair of a hole or crack

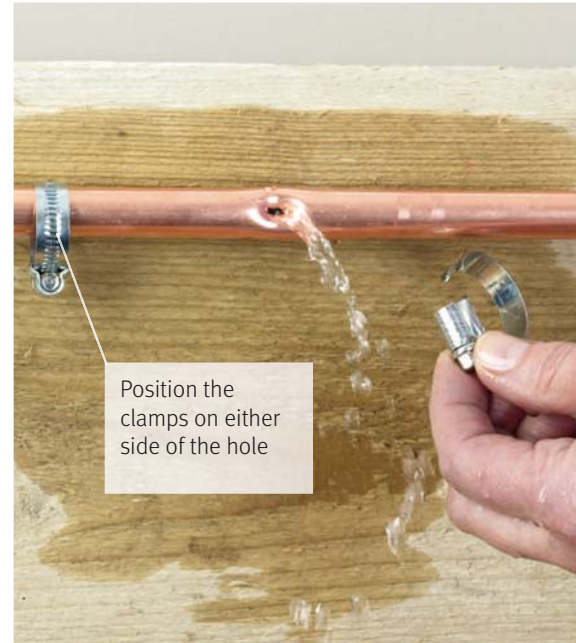
If water is allowed to freeze in a pipe, it may lead to cracks or splits, which can cause a leak when the water thaws. This method of repair can temporarily cover a length of pipe.

## Warning

If your home uses gas, be especially careful before attempting any plumbing work. As with water pipes, gas pipes should have shut-off valves. Always check with your local building department before carrying out work on your plumbing.

## Tools and materials

Hose clamps, section of hose, screwdriver



- 1 **Place hose clamps** on the damaged pipe, on either side of the hole or crack. Do not tighten at this stage.

## Turning off the water

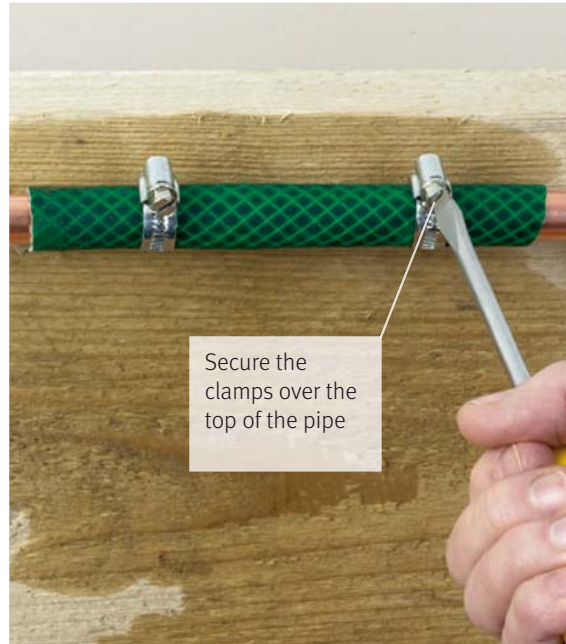
When a leak is detected, always turn off the water supply. All homes should have a stop valve that controls the flow of the main water supply into the home. It is important that everybody in the house knows the location of this

valve. Depending on the frequency and position of isolating valves in your system, you may be able to shut off the supply to particular areas.





**2** **Cut out** a section of hose to cover the hole or crack. Open the section along one side.



**3** **Place the piece** of hose over the area of pipe that is leaking. Clip into place with the hose clamps, and screw them tight to secure.

### Using isolating valves

Used as shut-off valves for the smaller areas of a plumbing system, isolating valves should be located throughout a plumbing system. For example, an isolating valve may be placed near a faucet.

If the faucet needs to be replaced, it is then only necessary to turn off the water supply to that faucet rather than shut down the entire water system.



Temporary repair of a leak

Temporary repair of a hole or crack

Replacing a sink sprayer

Repair using a slip coupling

Thawing a frozen pipe

Pipe repair using a compression fitting

Pipe repair using Teflon tape

# Replacing a sink sprayer

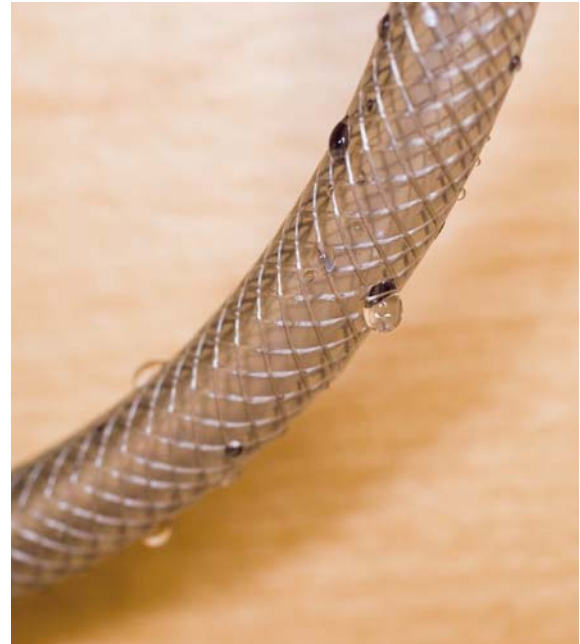
If the hose to your sink is leaking, you can replace just the hose, but you may find it easier to replace the entire assembly. Always shut off the water supply to the sink before you start working.

## Warning

If your home uses gas, be especially careful before attempting any plumbing work. As with water pipes, gas pipes should have shut-off valves. Always check with your local building department before carrying out work on your plumbing.

## Tools and materials

Basin wrench, sprayer hose, faucet sprayer



- 1 **Check the sprayer hose** for signs of water on the outside. This will indicate damage such as cracks or splits. If there is damage the hose will need to be unscrewed.

## Sink sprayers

These are popular accessories for cleaning fruit and vegetables or for giving other items a quick rinse. However, with time the spray head can get badly

clogged by mineral deposits in the water, and the hose can suffer damage from continually being pulled in and out of its mounting on the top of the sink.



**2** After detaching the sprayer hose from the faucet sprayer, go under the countertop to unscrew the sprayer base, and then remove the entire assembly.



**3** Install the new sprayer, first installing the sprayer base. Once the sprayer hose is in place, attach the faucet sprayer to the top of the sprayer hose.

Temporary repair of a leak

Temporary repair of a hole or crack

Replacing a sink sprayer

Repair using a slip coupling

Thawing a frozen pipe

Pipe repair using a compression fitting

Pipe repair using Teflon tape

# Repair using a slip coupling

Slip couplings are useful for repairing damaged sections of pipe when the pipe is in a fixed position and space is restricted. If it is possible to move the pipe easily, you could make a sprung repair with compression fittings instead (see p.152).

## Warning

If your home uses gas, be especially careful before attempting any plumbing work. As with water pipes, gas pipes should have shut-off valves. Always check with your local building department before carrying out work on your plumbing.

## Tools and materials

Junior hacksaw or pipe cutter, slip-coupling fitting, adjustable wrenches

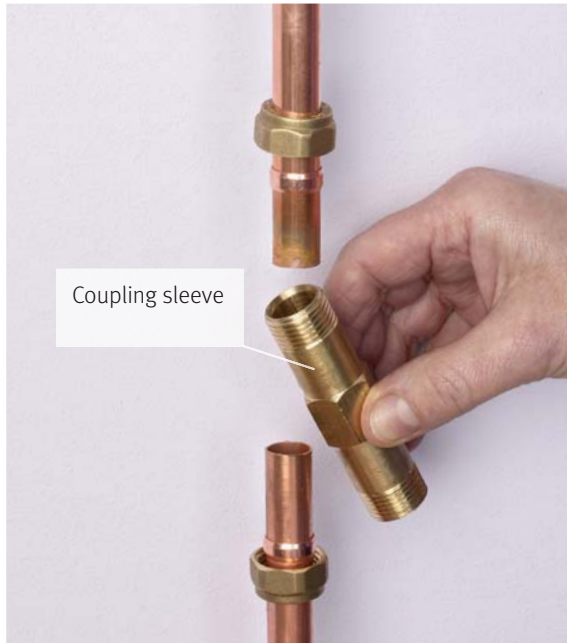


**1 Turn off the water supply.** Cut out the damaged section of pipe. Use a junior hacksaw or pipe cutter.

## Supporting copper pipes

When fitting long pipe runs, you will need to support the pipes using clips or support brackets (see opposite) at regular intervals. For  $\frac{1}{2}$  in (15 mm) copper pipes, these must be placed every 5 ft 11 in (1.8 m) when

vertical, and 4 ft (1.2 m) when horizontal. For  $\frac{9}{16}$  in (22 mm) copper pipes, place supports at every 7 ft 11 in (2.4 m) when vertical and 5 ft 11 in (1.8 m) when horizontal.



- 2** Position both nuts on the cut-end sections of pipe, then slip the coupling sleeve over the top section of pipe.



- 3** Slide the coupling up the upper section of pipe, and attach the nut to the coupling sleeve.

Continued ▶

### Two-screw copper support clips

These are simple copper brackets with two pre-drilled holes used for attaching copper pipes to walls or beams.



Temporary repair of a leak

Temporary repair of a hole or crack

Replacing a sink sprayer

Repair using a slip coupling

Thawing frozen pipes

Pipe repair using a compression fitting

Pipe repair using Teflon tape



**4** Align the coupling with the lower section of pipe and lower it into place.



**5** Tighten the coupling nuts using two wrenches turning against each other, to make the fitting and the pipe watertight.

#### Using connector inserts

Pipe systems may or may not need inserts at each joint. When plastic supply pipe is being used with plastic joints, some manufacturers suggest using

inserts to create an extra seal. When plastic supply pipe is being used with metal fittings it is almost certain that inserts will be required.





# Thawing a frozen pipe

If you suspect a frozen pipe, keep the faucet open so water will be able to flow through the frozen area as you treat it. Apply heat to a section of pipe, but never try to thaw it using a blowtorch or other open flame.

## Warning

If your home uses gas, be especially careful before attempting any plumbing work. As with water pipes, gas pipes should have shut-off valves. Always check with your local building department before carrying out work on your plumbing.

## Tools and materials

Hair dryer or heat lamp

## After the pipes have thawed

Look for leaks downstream because frozen pipes don't burst where they freeze. Water expands as it freezes and finds a weak spot to relieve the pressure, which could be at a faucet washer or at a seam in the pipe.



## Using a hairdryer

If the water is not pooled, it should be safe to use a hairdryer or heat lamp to thaw the pipe out gently.

Temporary repair of a leak

Temporary repair of a hole or crack

Replacing a sink sprayer

Repair using a slip coupling

Thawing a frozen pipe

Pipe repair using a compression fitting

Pipe repair using Teflon tape

# Pipe repair using a compression fitting

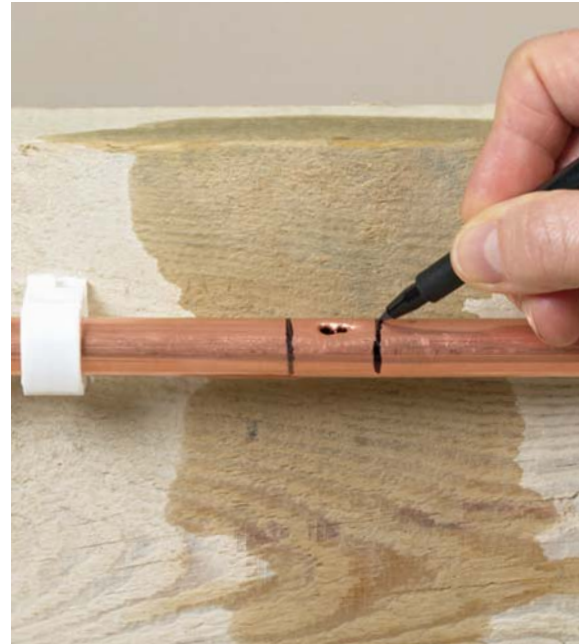
If the pipe is not rigidly held in place and there is some vertical and horizontal movement allowed, the leak may be repaired with a standard compression fitting. The new section springs into position.

## Warning

If your home uses gas, be especially careful before attempting any plumbing work. As with water pipes, gas pipes should have shut-off valves. Always check with your local building department before carrying out work on your plumbing.

## Tools and materials

Marker pen, junior hacksaw or pipe cutter, compression fitting, adjustable wrench

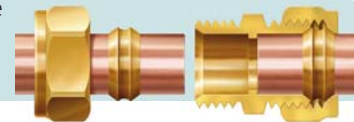


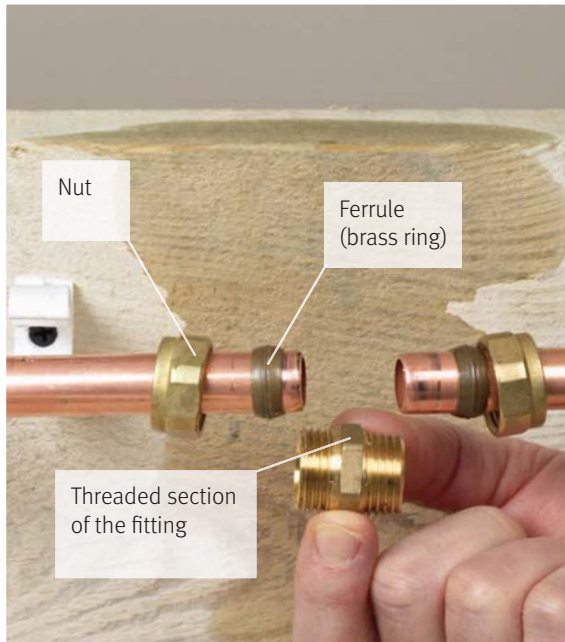
- 1 **Turn off the water** supply, then mark around the damaged section of pipe. Cut out the section using a junior hacksaw or pipe cutter.

## Compression joints

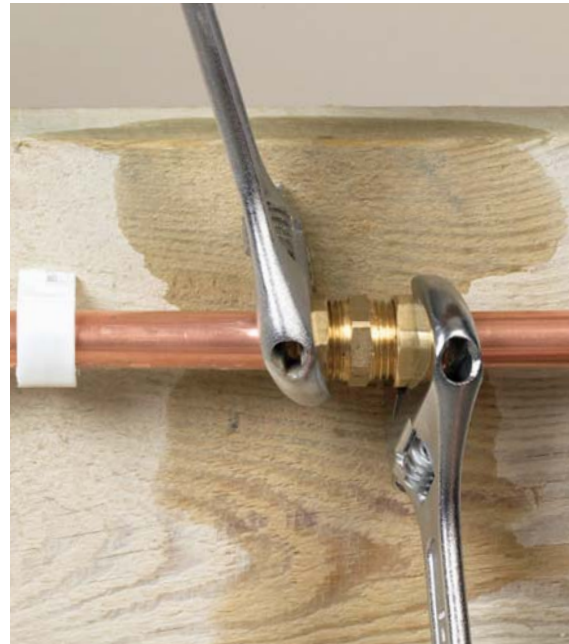
In these joints a compression sleeve (soft metal ring) is squashed around the pipe as the joint is tightened, providing a watertight seal. However, do not overtighten or you may damage the sleeve and break the seal. After

reopening a compression joint, it is always best to wrap Teflon tape around the sleeve to ensure it stays watertight.





**2 Detach the pipe** from its clips. Place the nuts on the pipe ends. Slide the threaded central part of the fitting between the pieces of pipe.



**3 Tighten the nuts** with an adjustable wrench onto the compression fitting to make the repair watertight.

Temporary repair of a leak

Temporary repair of a hole or crack

Replacing a sink sprayer

Repair using a slip coupling

Thawing frozen pipes

Pipe repair using a compression fitting

Pipe repair using Teflon tape

# Pipe repair using Teflon tape

Joints with threaded sections can corrode over time, and small movements in the joint can eventually create a leak. The best solution is to take the joint apart and wrap Teflon tape around the thread before you retighten it. This will fill up any small gaps.

## Warning

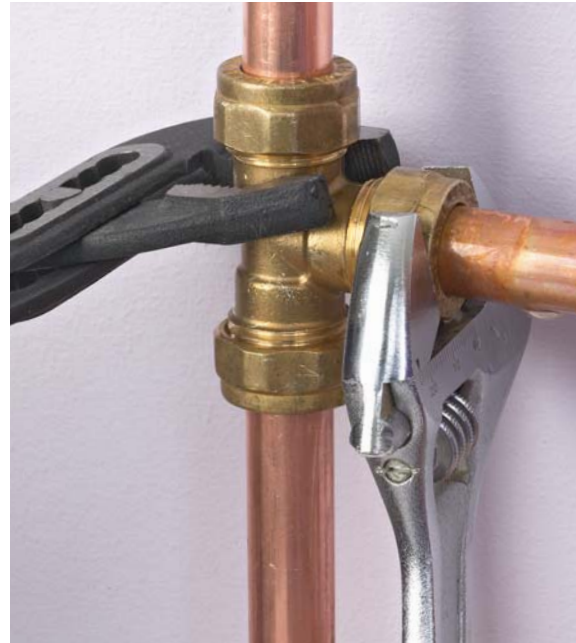
If your home uses gas, be especially careful before attempting any plumbing work. As with water pipes, gas pipes should have shut-off valves. Always check with your local building department before carrying out work on your plumbing.

## Tools and materials

Adjustable wrenches, Teflon tape

## Working with adjustable wrenches

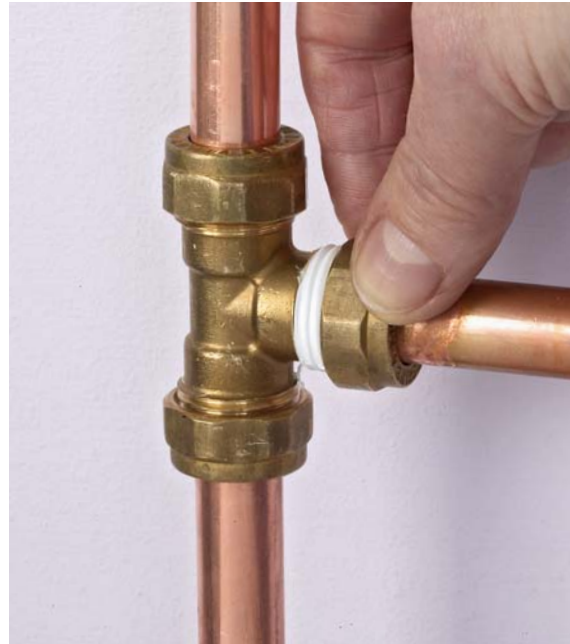
Multipurpose gripping tools such as this wrench are used for holding fixtures and fittings in place. Its jaws may be adjusted to fit nuts and bolts of different sizes.



- 1 After you have turned off the water,** undo the compression joint with a wrench. Brace the pipe with a second wrench to hold it steady.



**2** Wrap the Teflon tape around the male section of the thread without kinking it, and wind it in the same direction in which the nut will be tightened.



**3** First tighten the nut back on by hand to check that the tape is staying in position, and then tighten it with a wrench.

Temporary repair of a leak

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## Kitchens and bathrooms

GE Appliances  
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Fax: 860-827-3895  
www.stanleyworks.com

**The authors**

Julian Cassell and Peter Parham are the authors of titles covering all aspects of home improvement. Their books have sold more than one million copies worldwide. Having run their own successful property renovation business for more than 20 years, these award-winning authors offer technical know-how combined with an innovative approach to home improvement. They are the authors of DK's *Do-It-Yourself Home Improvement* and *Decorating Hints and Tips*.

Theresa Coleman has a passion for making home improvement fun, safe, and successful as an author and editor of books, magazine articles, and educational games for DIYers and professionals alike. Trained in architecture, Theresa is designing and improving her 100-year-old home in Pennsylvania, with a simply elegant design she's branded Formal Farmhouse.