

PLUGGING UP THE LEAKS

It doesn't matter where you live or what style of house or apartment you live in, getting rid of the leaks in your home will save you money on your heating bill!

Older homes have a fondness for leaking like a sieve, but not-so-old homes may benefit from some of these measures as well.

Draught proofing is one of the cheapest and most efficient ways to save energy in your home. Just a few simple DIY tasks will save you money and make your home snug and pleasant too.

Fill cracks and gaps less than one-quarter inch wide. Look for gaps around electrical outlets and switches on exterior walls; where pipes go through insulated floors and ceilings; around windows, door and baseboard mouldings; and where wires go through insulated floors, ceilings and walls.

You may be heating your attic. Unless you want to keep the broken furniture, leisure suits, and magazines from the '80s that you've dumped up there nice and toasty, think about sealing off the tops of interior partition walls where they meet the attic from the attic.

Draught proofing



Draught proofing - what's it all about?

Draught proofing - the basics

Draught proofing is one of the cheapest and most efficient ways to save energy in any type of building, from a flat to a mansion - but it's often overlooked.

To draught proof your home you should block up unwanted gaps that let cold air in and warm air out. By saving warm air you'll use less energy to heat your home.

To check for leaks around your window, hold a lit incense stick near the window. If the smoke does anything but float up, you've got a leak that should be stopped up with a little weather-stripping.

Can I draught proof my home myself, I hear you ask?

Usually, yes - if you're happy carrying out simple DIY tasks, draught proofing will be no problem. But some homes, especially older homes with single glazing, will be more difficult to draught proof - it might

be worth contacting a professional.

How much does draught proofing cost?

DIY draught proofing costs around €120 for materials.

Professional draught proofing costs around €250 for the full service

Professional draught proofing is likely to save more energy because the installer knows exactly the right materials to use and where to use them.

Either way, draught proofing will pay for itself within a few years because you'll save money on your heating bill.

The benefits of draught proofing

Draught proofing saves you money - and makes your home snug and pleasant.

The savings

Full draught proofing will save on average €25 per year. Blocking gaps around skirting boards and floor boards could save another €20 per year.

Draught-free homes are comfortable at lower temperatures - so you'll be able to turn down your thermostat. This could save you another €55 per year.

How the savings add up

If every household in Ireland used the best possible draught proofing, every year we would save:

almost €1.4 million

enough CO2 to fill nearly 16,000 hot air balloons

enough energy to heat over 18,000 homes

Using the right draught proofing materials

You will need different draught proofing material for different parts of your home - the information below should help you find the right product.

Always look for draught proofing with the Kite-mark this shows that the product is made to a good standard.

Windows

For windows that open, buy draught-proofing strips to stick around the window frame. These fill the gap between the window and the frame. There are 2 main types:

Self-adhesive foam strips - the cheapest option, and easy to install, however may not last as long as other methods.

Metal or plastic strips with brushes or wipers attached - these are long-lasting, but cost a little more.

Make sure your strip is the right size to fill the gap in your window. If the strip is too big it will get compressed and damaged and you may not be able to close the window. If it's too small there will still be a gap.

For sliding sash windows it's best to fit brush strips or consult a professional. Foam strips do not work well.

For windows that don't open you can use a silicon sealant.

Doors

Draught proofing for outside doors can save a lot of heat and will only cost you a few pounds.

There are 4 main things to think about:

1. The gap at the bottom - use a brush or hinged flap draught excluder.
2. Gaps around the edges - fit foam, brush or wiper strips like those used for windows.
3. The keyhole - buy a purpose-made cover that drops a metal disc over the keyhole.
4. The letterbox - use a letterbox flap or letterbox brush. Remember to measure your letterbox before you buy.

Inside doors need draught proofing if they lead to a room you don't normally heat, like your spare room or kitchen. You should keep doors to unheated rooms closed as much as possible to stop the cold air from moving into the rest of the house. If there is a big gap at the bottom of the door then you could make a draught excluder stuffed with used plastic bags or bits of spare material.

Inside doors between two heated rooms don't need draught proofing - it's ok to let warm air circulate between different rooms.

Chimneys and fireplaces

You don't need an energy audit to find one giant hole in your house...your chimney!

If you don't use your fireplace, your chimney is probably a big source of unnecessary draughts. There are 2 main ways to draught proof a chimney:

1. Fit a cap over the chimney pot - this might be better done by a professional.
2. Buy a chimney balloon - an inflatable cushion which blocks up the chimney.

Remember to remove the draught proofing if you decide to light a fire!

Floorboards and skirting boards

You can block cracks using filler that you squirt into the gap.

Floorboards and skirting boards often contract, expand or move slightly with everyday use, so you should use filler that can tolerate movement - these are usually silicon-based.

Look for:

- flexible fillers
- decorator's caulk
- mastic-type products

Fillers block gaps permanently so be careful when you apply them and wipe off any excess or mess with a damp cloth before it dries. Fillers may break down over time, but can easily be re-applied. Fillers come in many different colours, and for indoor and outdoor use.

Attic hatches

Draught proofing your attic hatch is essential, since hot air rises and is lost into the cold space in the attic. Cold air can also blow in through the gaps around the attic hatch. Attic hatches can be draught proofed by using strip insulation, like you would on a door.

Pipe-work

You can fill small gaps around pipe-work with silicon fillers, similar to the fillers used for skirting boards and

floorboards.

Larger gaps should be filled with expanding polyurethane foam. The foam can be sprayed into the gap. As it dries it will expand and fill the hole, then set hard.

Old extractor fans

Old extractor fan outlets may need to be filled with bricks or concrete blocks and sealed from the outside and inside of the building. You should contact a good builder for this kind of work.

Cracks in walls

You can fill cracks in walls using cements or hard setting fillers - but if it's a large crack, there may be something wrong with your wall. Consult a surveyor or builder to see what caused the crack in the first place.

Draughts and ventilation - what's the difference?

Draught proofing works by blocking any gaps where unwanted air enters the house - but every home needs some fresh air. It's important to know the difference between proper ventilation and unwanted draughts.

What is ventilation?

Ventilation is a way of keeping the air in your home fresh, dry and healthy. Air should move around your different rooms, and should be slowly exchanged with fresh air from outside. This stops the build up of damp and stale air.

Homes should be fitted with vents which allow the right amount of air to flow into and out of the house.

What are draughts?

Draughts are like ventilation in some ways - both let fresh air into your home. But draughts are uncontrolled. They let in too much cold air and waste too much heat. Draughts occur where there are accidental gaps in the construction of your home, or if you leave doors, windows, keyholes or letterboxes open or uncovered.

What kinds of ventilation are there?

There are several different types of controlled ventilation which help keep your home healthy. You should not block up any of these without consulting a professional.

- extractor fans - these extract damp air quickly in rooms where lots of moisture is produced (kitchens, bathrooms and utility rooms)
- under-floor grills - these help keep wooden beams dry
- wall vents - these let small amounts of fresh air into rooms
- trickle vents - modern windows often have small vents above them to let fresh air trickle in

What kinds of draughts are there?

You'll find draughts at any accidental gap in your home that leads outside. These are the most common places:

- windows
- doors
- attic hatches
- electrical fittings on walls and ceilings
- suspended floorboards
- pipework leading outside
- ceiling-to-wall joints

You should block most of these - but be careful in rooms that need good ventilation, such as bathrooms or kitchens.

Which rooms don't need draught proofing?

You should be careful about draught proofing rooms that need good ventilation, including:

Areas where there are open fires or open flues - It is essential that areas like this have adequate ventilation.

Rooms where a lot of moisture is produced, such as the kitchen, bathroom or utility room. Good ventilation helps reduce condensation and damp.

Attic insulation



In an un-insulated home a quarter of your heat is lost through the roof. Insulating your attic is a simple and effective way to reduce your heating bills and you can even do it yourself!

Attic insulation - what's it all about?

It's never been more important to think about insulating your attic. Without proper insulation a lot of the valuable, expensive energy you use to heat your home will be lost through the attic. The recommended depth for mineral wool insulation is 270mm however there are other materials which require different depths.

Why insulate your attic?

Attic insulation is an effective way to save energy and money at home. A well insulated house keeps warmth exactly where you need it - indoors.

So, insulating your attic - or topping up any insulation you have already - will help to heat your home more efficiently. Using less energy reduces carbon dioxide emissions (CO₂): one of the biggest causes of climate change. You will also save money on your bills too.

How does attic insulation work?



Heat will always flow from a warm area to a cold one. The colder it is outside, the faster heat from your home will escape into the surrounding air.

Insulation makes it much more difficult for heat to pass up through your roof by providing a layer of material which has lots of air pockets in it. These pockets trap heat, cutting what is known as the U value of the attic.

The U value measures how quickly it loses heat so the lower the U value, the less energy you need to keep your home warm. Attic insulation cuts your attic's U value from around 2.3 (for an un-insulated attic) to 0.16

W/m²K, a reduction of around 95%. You may on occasions also see references to an R-value. An R value is a measure of thermal resistance and is the inverse of a U value so the higher the R value the better. The NIA recommend attics should be insulated to an R value of between 6.1 and 7 Km²/W. The R value is usually displayed on the packaging of insulation. R values can be added together to reach the total required.

What could you save?

	Attic insulation (0 - 270mm)	Attic insulation (50 - 270mm)
Annual saving per year (€)	Around €150	Around €45
Installed cost (€)	Around €250	Around €250
Installed payback	Around 2 years	Around 6 years
DIY cost	€250 - €350	€200 - €300
DIY payback	2 - 3 years	5 - 7 years
CO ₂ saving per year	Around 800kg	Around 230kg

These are estimated figures based on insulating a gas-heated, semi-detached home with three bedrooms.

Attic insulation is effective for at least 40 years, and it will pay for itself over and over again in that time. The better insulated your home, the less energy you need to keep it warm - the more money you'll save in the long run.

By saving energy, your household will produce less CO₂. So, adding or topping up your attic insulation is a great way to do your bit - and reduce your impact on the environment. Plus, to save money on a professional installation, you can even do it yourself.

Could attic insulation work for your home?

Generally speaking, your home will be a perfect candidate for attic insulation if it has an accessible attic with no damp or condensation problems.

For attics with difficult access, blown insulation can be used however this must be installed by an installer.

Did you know?

If everyone in the Ireland installed 270mm attic insulation, we could save around €36million and nearly a quarter of a million tonnes of CO₂ every year. That's enough to fill Croke Park nearly 300 times.

How do you insulate an attic?

The good news is that insulating your attic with attic insulation blankets, often referred to as 'quilts' can be a pretty straightforward job for either an installer or a competent 'DIY-er'. It needs to be done to a high standard to avoid unnecessary wastage so if you don't feel sufficiently confident or you've finally admitted to yourself (and the significant other half) that you have two left thumbs then hire an installer.

Another type of attic insulation, blown insulation, must be installed by a professional. An installer will typically take just a few hours and may use specialist equipment which blows loose, fire-retardant insulation material into the attic.

For DIY jobs, quilts should be used which can be laid over the attic's area.

If you'd like to use your attic for living space, then you could look at insulating the roof of the attic instead. This is usually done by insulating between the roof rafters using rigid insulation boards.

All about installation

Whether you're installing attic insulation yourself or calling in a professional, here's an introductory look at what installation involves.

Please don't use this as an installation guide; contact an installer or consult a proper DIY manual when it comes to doing the job.

What insulation materials do you need?

There are three main types of attic insulation:

Quilts - mineral wool and natural wool

Blown insulation - mineral wool and cellulose

Boards - expanded/extruded polystyrene.

Typically, quilts are laid down between the joists - the, horizontal beams that make up the `floor' of the attic - then another layer of insulation is `cross-laid' to cover the joists but there are other solutions if you wish to use the attic for storage or convert the space into a living area.

If the attic is going to be used for storage then you can insulate between the joists and then either use flooring boards backed with further insulation over the top (making sure that the lower insulation isn't squashed down) or you can raise the level of the floor and insulate to the recommended depth. If you are in doubt about the best method, contact an installer.

If you wish to convert the space into a living area, you will need to insulate to keep it warm. Instead of laying insulation between the joists, it is possible to fit rigid insulation boards between the rafters: the sloping timbers that support a pitched roof.

Please remember that while quilts and boards are suitable for DIY-ers to work with, blown insulation should only be installed by professionals with specialist equipment.

Quilts:

Sold in flexible blankets of different thicknesses.

Man made from glass or rock fibre, some of which will have been recycled.

Mineral wool is the most common form of attic insulation quilt.

You should always wear a protective mask and gloves when insulating your attic with mineral wool.

Natural wool insulation is another form of quilt that's very environmentally friendly.

Blown insulation:

Blown loose into the specific, sectioned-off area to the required depth.

Blown cellulose fibre or mineral wool should only be installed by installers

Cellulose is man-made from newspapers.

Fire resistant

Boards:

Boards are made from expanded / extruded polystyrene - for roof insulation only

Expanded polystyrene (EPS) is polystyrene that's been expanded into foam.

Extruded polystyrene (XPS) is similar but an even better insulator.

How much insulation should you need?

These days, if you are fitting the most common insulation material, mineral wool, the recommended depth of attic insulation is 270mm.

If your attic was insulated a while ago, your insulation may not be deep enough by today's standards - and will be well worth topping up.

However there are other materials out there which have different insulating properties and therefore require different depths.

Basically, the deeper the insulation is in your attic, the less heat you will lose through your roof and the bigger CO2 and financial savings you will make.

Installing 270mm of insulation in a attic with no insulation will save around a tonne of CO2 per year. If there was already 50mm of insulation and you topped this up to 270mm, the extra saving would be around 230kg of CO2 per year.

In the case of 'blown' attic insulation, your installer will make sure it's added to the right depth.

How should insulation quilts be laid?

Attic insulation quilts should be laid horizontally between the joists and reach the top of the joist. Typically, this will make the insulation around 100mm to 150mm deep.

More layers should then be added at right angles, to close up any gaps between the joist and the quilt, and to bring the depth to the recommended 270mm.

Important things to remember

Try not to squash down the insulation material. This makes insulation less effective.

Make sure you don't block any air vents, which are there to help prevent condensation. You may need more of them if condensation is a possible problem; a professional can tell you about different ventilation methods like soffit, tile or ridge vents.

All electric wires, cables and light fittings must be kept visible to avoid overheating. If you are in doubt, it may be best to contact an installer.

Always wear a protective mask and gloves when working with mineral wool insulation.

What if you use the attic for storage?

In other words, what if you need a solid 'floor' on top of your insulation?

You have four main options:

Insulate horizontally up to the top of the joists, as normal, and then fit boards across them. This will make the insulation a lot shallower than 270mm, so won't save as much energy.

Before you fit any boards, install a second set of joists across your insulated horizontal joists. Then insulate between these too, to bring the total depth of insulation to around 270mm. This will mean more outlay - but greater savings.

Do as in option 1 in just a part of the attic, then insulate the rest of the attic as normal - i.e. at right angles to the joists and up to a depth of 270mm.

Do as in option 1, but instead of using traditional boards, use hard insulation boards. These could be made of the expanded or extruded polystyrene (EPS or XPS) material we mentioned before. This will give you a solid surface and the right level of insulation. Please note: the depth of insulation board required varies depending on the material used.

Remember to insulate your pipes, water tank and attic hatch

Insulating between the joists of your attic will keep your house warmer but make the roof space above colder. So, without their own insulation, pipes are more likely to freeze.

If there are any water tanks in the attic, they, should be insulated with insulation jackets.

Also, if your water tanks are some distance from the attic hatch, you will need to lay a suitable walk board or similar to provide safe access.

Finally, the cooler air of your insulated attic could mean cold draughts through the hatch. To prevent this, buy an insulated attic hatch from a DIY store and put strips of draught-excluding material around the edges of the frame.

A registered installer will, of course, be able to help with all of these details.

How do you insulate the roof of an attic?

This is usually done by insulating between the roof rafters, using rigid insulation boards made of expanded or extruded polystyrene. Boards must be carefully cut to the right width so that they fit snugly between the rafters.

Rafters aren't usually very deep, but luckily boards insulate more efficiently than quilts. If you really need deeper insulation, insulated plasterboards can also be fitted onto the rafters - although this will make the attic space a little smaller.