Save energy, save money and stay warm: your guide to energy efficiency in tenements
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Getting started

About this guide

This guide aims to help you save money on your heating and electricity bills and keep your home warm. It is aimed at people who live in or own traditional stone tenement flats in Scotland.

Tenements are very common in Scotland. This guide focuses on tenements built before 1919 which are often colder and draughtier than new homes, and can cost more to heat.

Each factsheet provides practical advice to help you decide what improvements you can make and how to make them. There are seven factsheets, including this one, and each one explores a different aspect of the home. Each factsheet provides you with:

• Quick and easy ways to save energy.
• Other improvements that can make your home warmer.
• An indication of how much improvements may cost and how much they may save you.
• Important things to consider.
• Links to further information.

It is difficult to say exactly how much improvements will save you on your energy bills as this varies from home to home. Costs and savings are based on the most appropriate information at the time of publication (June 2015).

Remember that saving energy also helps to protect the environment. By using less energy, you are reducing the amount of carbon dioxide released into the atmosphere. This reduces the impacts of climate change.

Other actions you can take

Another way to save money on your energy bills is to make sure you are getting a good deal from your energy supplier. You might be able to get a tariff or energy supplier that is cheaper than your current one.

FOR MORE INFORMATION go to www.goenergyshopping.co.uk for a list of energy comparison websites approved by the UK Government. Call Home Energy Scotland on 0808 808 2282 for free and impartial general advice, not advice on particular companies.

About this factsheet

This factsheet gives you the information you need to start saving energy and making improvements to your home. It also covers how to go about making communal improvements, finding installers and getting planning permission. It also contains information on financial support available to make improvements to your home.
Where to start

Start simple

The best place to start is often with improvements that are quick and easy to do. Look out for tips in each factsheet – these are simple ways to cut your energy use and some will cost you nothing!

Next, try some straightforward, low cost improvements:

- Draught-proofing gaps in your home – Factsheet 3.
- Insulating your hot water tank and pipes – Factsheet 6.
- Making sure you know how to use your heating correctly – Factsheet 6.
- Replacing your light bulbs with low energy bulbs – Factsheet 7.

What next?

Before making bigger improvements to your home, you may want to consider:

1 Where you use energy at home

Most of the energy we use is for heating and hot water. Reduce this by fitting radiator panels (Factsheet 5) or a hot water tank jacket (Factsheet 6). If your home is draughty, think about draught-proofing (Factsheet 3). Cut heat loss by improving your windows or doors (Factsheet 2) or insulation (Factsheet 4). It’s difficult to say which improvements are best because this varies from home to home, but reading the factsheets will give you more information to help you decide.

We also use energy for lighting, electrical appliances and cooking. Electricity is relatively expensive and there are lots of easy ways to cut your usage – see Factsheet 7.

Have a look at your energy bills to see how much you’re spending. Contact Home Energy Scotland on 0808 808 2282 to check how your energy use compares to others. Use these factsheets to think about which measures – might be best for you and your home.

Try some straightforward, low cost improvements first, like replacing your light bulbs with low energy bulbs.

2 Your priorities

If your main concern is improving warmth in your home, you should focus on reducing heat loss and draughts (see Factsheets 2, 3 and 4 for advice on this). If your main concern is saving money on your heating and electricity bills then all factsheets will be helpful.

Your Energy Performance Certificate

An Energy Performance Certificate (EPC) shows how energy efficient your home is on a rating of G (least efficient) to A (most efficient).

All homes that are rented or sold must have an EPC, it should be on show in your flat. If not contact your landlord.

An EPC also gives you recommendations on how to improve your home, including estimated costs and savings from improvements. This is tailored advice for your home but remember that all the savings are based on assumptions about how you live in your home and how you use your heating. In reality, savings may differ. For example, if you have your heating on for fewer hours a day than an ‘average household’ the savings will be lower.
Making improvements

Once you have decided which improvements you want to make, you need to think about who you want to make them.

Who can make improvements to your home?

You can make some of the improvements in these factsheets on a DIY basis but most will require a professional insulation installer, joiner, heating engineer or plumber. For free impartial advice on what type of professional you need, what accreditations they should have and where to find one, call Home Energy Scotland on 0808 808 2282.

Ask the professional to give you a quote on how much the work will cost and what they will do. Always get quotes from at least three professionals to make sure you are getting good value for money, but remember the cheapest may not always be the best!

If you have any concerns or issues about installers contact the Citizens Advice consumer helpline on 03454 04 05 06.

Things to consider

- **Are you a tenant?** If you are renting your home, always speak to your landlord and get permission before making any changes.

- **Are you carrying out a communal improvement?** You will need to talk with your neighbours if you want to change any of your tenement’s communal areas, such as the roof, stairwell or main door. These areas are usually owned by everyone.

  You will need to find out how many people are needed to make a decision on this and how much everyone pays. This is sometimes written in the title deeds to your property. For advice on this, read Consumer Futures’ short guide, Common Repair. If you are renting, speak to your landlord.

- **Do you need permission from your local authority?** You may need this if:
  
  - You live in a conservation area and want to make changes to the external appearance of your home e.g. walls, windows or doors. You may need planning permission.
  
  - Your home is a listed building. You may need listed building consent for some changes to the inside or outside of your home. Find out if your home is listed by looking in the title deeds (if you own your home) or contact your local authority.
  
  - You are making changes to your home that may impact its structure, including changes to the roof, external wall or inserting a new flue. You may need a building warrant.

Permissions vary so contact your local authority for more information. You will have to pay a fee to get planning permission and a building warrant.
Financial support available

You may be able to get financial support and funding to help you make improvements to your home.

The availability and amount of funding will depend on:
- The types of improvements you want to make.
- Details of you and your home.
- What funding schemes are available at the time.

A summary of the main funding schemes is provided in the table on the right.

**FOR MORE INFORMATION** on available schemes, call Home Energy Scotland on 0808 808 2282. Calls are free from landlines and all major mobile networks. Or text ‘Warm’ to 81025 for a call back. You can also go to the [Energy Saving Trust](https://www.energysavingtrust.org.uk) website.

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<td>A UK Government scheme that pays for every unit of heat generated from a renewable system such as solar hot water panels, heat pumps or biomass boilers.</td>
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1 Details correct at time of publication.
Reducing heat loss from your windows and doors

Tenements usually have original wooden doors and single glazed sash and case windows. You can reduce the heat lost through these to make your home warmer, save money and reduce the energy you use.

This factsheet covers:
- Using curtains, blinds and shutters.
- Improving your windows.
- Insulating or replacing your front door.

Draught-proofing windows is covered separately in Factsheet 3.

Improving your windows

If your windows are single glazed they will lose a lot of heat. Improving or changing them will make your home feel warmer and save you money on your heating bills, especially if you have large windows such as bay windows.

Curtains, blinds and shutters

You can reduce heat loss from your windows by fitting:

- **Curtains**: Hanging a thick, lined curtain will reduce heat loss and make your home feel more comfortable. Make sure curtains are sized to the window, fitted correctly and do not hang in front of radiators.
- **Blinds**: Adding a thermal blind between a window and the curtain will provide an extra layer to reduce heat loss and draughts further.
- **Shutters**: Fitting shutters (pictured, right) can reduce heat loss from windows by up to half. Speak to a joiner if you want to install them. They can also repair existing shutters if they don’t shut properly, are in poor condition or have been painted shut. They cost around £300 per window. You can also get insulated shutters which cost more at around £600 per window.

2 Source: Historic Scotland and Changeworks (2012) *Technical paper 16*
3 Source: Historic Scotland (2012) *Refurbishment case study 1*
**Double glazing**

Depending on where you live, there may be restrictions on certain window improvements. This mainly relates to conservation areas and listed buildings, where you may need planning permission or listed building consent, or both. Speak to your local authority planning department to find out if either applies to your home. If it does, try to find improvements that do not impact the appearance or mean you have to remove the original windows.

Timber framed sash windows are generally the most appropriate for older tenements. Although other frames exist, well-made timber double glazing is readily available, and if well looked after it can last a long time. If you put in double glazing, make sure the windows have trickle vents to allow moisture to escape which will reduce the build-up of condensation and damp. It is very important to open the trickle vents and not seal them up, particularly in rooms that are likely to get condensation such as bathrooms and kitchens. Standard double glazing may not be permitted if you live in a listed building or conservation area; see right.

The cost of double glazing is around £400 – £800 per window, depending on the type and size of window, and type of frame. Replacing single glazed windows with double glazing will save you about £40 – £60 per year.²

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**Slim-profile double glazing**

If you live in a listed building or conservation area it may still be possible to install double glazing. Slim-profile windows look more like original windows because the gap between the two panes of glass is smaller (about 6–16mm). Their performance varies, but the best systems can be as good at reducing heat loss as standard double glazing.

Instead of replacing the whole window, you might be able to insert slim-profile double glazed panes of glass into the existing frame, known as a casing. This means inserting multiple smaller panes of glass, or one large double glazed unit into each sash casing. This is also a good opportunity to draught-proof your windows, see Factsheet 3.

**Reveals**

The side walls around windows and external doors are known as ‘reveals’. These parts of the wall are often much thinner (especially where there are shutters) and so can be colder. If you fit double glazing or insulate your front door, it is recommended you also insulate the reveals. Otherwise they can become damp or mould can appear. One of the best methods for insulating this area is using blown bead (see Factsheet 4 on wall insulation).
Secondary glazing

An alternative to double glazing is secondary glazing. This means adding a second layer of glass or plastic to the window.

Secondary glazing will make your home warmer and can be as good as double glazing. Whilst some options are cheaper than double glazing, high performance secondary glazing can cost just as much. If you are in a listed building it can be easier to get permission for secondary glazing than double glazing, but make sure the type you choose has the least visual impact possible.

If you are putting in secondary glazing, draught-proofing the window is not recommended because this can increase the risk of condensation between the two windows. However, this will depend on the type of secondary glazing and the condition of your original window.

Transparent film

A low cost way to fit secondary glazing is to use transparent film, which is a bit like cling film. You can buy this in hardware shops or online for about £2.50 per window. It can be very effective at reducing condensation on windows and you can fix it on yourself. However you may not be able to open your window until it is removed and it won’t last long before it comes off, probably one winter. If you are renting your home, this is something you could do as it doesn’t require planning consent or permission from your landlord.

Plastic sheet

Another DIY option is to get a sheet of clear plastic cut to size, and fix it to your window frame using Velcro or magnetic strips. This is simple and cheap, and can be re-used each winter. It will prevent you from opening your window so it is only suitable in some circumstances.

Secondary glazing unit

Secondary windows can be bought or made to measure. They will generally sit a little way from the original window, although you can get some that will fit next to it. Either way, the position of the frame should match the original window.

Make sure you can open the secondary glazing to ventilate the room and allow you to clean and maintain the original windows. There are a range of opening styles to suit the original window and the layout of your room, some slide or tilt open whilst others can be removed from the frame altogether.

If you have shutters you will need to choose a style of secondary glazing that fits closer to the original window. You may also have to replace the handle on the shutter with a ridge to grip, so that it won’t damage the secondary glazing when you close them.

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6 Source: Changeworks (2015) costs research
Improving doors

Most tenements have a front door to each flat and a main front door to the communal stairs. Stairwells tend to be cold and draughty, so both of these doors will lose heat.

You can save energy by refurbishing or replacing your doors. Draught-proofing doors also saves energy, this is covered in Factsheet 3. You can also hang a curtain immediately inside the door to your flat.

If your building is listed, speak to your local authority before you make any improvements.

Refurbishing doors

You can reduce the amount of heat lost from your door by:

- **Insulating the wooden panels within the door.** These are usually thinner than the rest of the door and lose more heat. This is specialist work which should be carried out by a joiner.

- **Adding double glazing.** Whilst most tenement doors are solid wood, there are often fan lights above them which are usually single glazed. Double glazing these will reduce heat loss. See page 6 of this Factsheet for details.

Replacing doors

If your original door is very warped or damaged replacing it will reduce heat loss and improve security. An insulated door reduces heat loss but these can be expensive, around £1,200. If you’re in a listed building make sure the new door looks similar in appearance.

Communal doors

If there is space behind the communal front door you can add a ‘draught lobby’. This is a second door positioned a few meters in from the main door (pictured right). This would require a building warrant and you would need to consider the impact on any decorative features in the stairwell, but it can make a big difference to comfort and heat loss.

You can also draught-proof external doors in your block. Refer to Factsheet 3 and discuss options with your neighbours.

FOR MORE INFORMATION about improving your windows and doors, see these publications:

- Changeworks’ report on Double Glazing in Listed Buildings.
- Changeworks’ guide to improving energy efficiency in traditional and historic homes, Energy Heritage.
- Historic Scotland’s guide on shutters, Inform Guide.

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Save energy, save money and stay warm: your guide to energy efficiency in tenements

FACTSHEET 3

Keeping out draughts

Draughts are a common problem in tenements with gaps around windows, doors and floorboards. Heat escapes through these gaps so reduce them to save energy, save money and stay warm.

This factsheet explains how to reduce draughts from:

- windows and doors
- chimneys
- walls
- floorboards and skirting boards

Sealing gaps will reduce heat loss and make your home more comfortable.

Why draught-proof?

Around a fifth of the heat lost from a tenement flat is due to draughts¹, although this will vary from home to home. This can increase the cost of heating your home and allow cold air in, making you and your home feel uncomfortable.

Sealing gaps is called ‘draught-proofing’ and will reduce heat loss. Draught-proofing is usually a relatively low cost measure, although some options are more expensive.

Ventilation

Tenements are old buildings and were designed to have some airflow to avoid causing damp. It is very important that this is maintained. Try to reduce draughts where you can, but don’t seal up your home completely. Open windows on warmer days or when you don’t have your heating on to allow fresh air in.

Sealing gaps will reduce heat loss and make your home more comfortable. In bathrooms and kitchens an extractor fan may be required for extra ventilation. Without sufficient ventilation, damp, condensation and mould can build up which can have a negative impact on your health and home. For safety reasons, it is especially important to have ventilation if you use a gas boiler or heater, or wood or coal fire.

Windows and doors

In tenements, windows and doors are often the areas with most draughts. Wooden doors and windows shift over time, creating gaps between the frames and casings. Draught-proofing all windows and doors can make a saving of between £15 and £55 a year².

You may also want to consider replacing your windows and doors, particularly if they are in poor condition – see Factsheet 2.

What materials should I use?

There are a range of different draught proofing materials and products available. DIY draught proofing can cost as little as £10 per window³ whilst more advanced versions installed by a professional can cost up to £350 per window⁴.

DIY draught proofing

- **Fabric draught excluders**: You can very easily reduce draughts under doors by making or buying a fabric draught excluder.
- **Foam strips**: Foam or rubber strips are a cheap option and you can use them around door and window frames. They are typically not as hard wearing and so do not last as long as other options. Self-adhesive strips are bought in rolls and can be cut to fit the length of the gap.
- **Compression seals**: These are made of rubber and compress to fill the gap when the window/door is closed. Compression seals come in a range of shapes and sizes. They should come with instructions on how to fix them to your doors or windows. Usually they are fixed using tacks (small nails) or they may come fitted in a plastic or metal holder which is screwed into place.

³ Source: Changeworks (2015) costs research

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**TIP!**

- **Brush or rubber strips** (pictured, right): These are metal or plastic ‘plates’ with a brush or rubber strip attached, and are commonly used under doors. To fit, the plate should be screwed onto the bottom of the door so that the brush or rubber strip overhangs to cover the gap. If needed, the brush can be trimmed.

Brush strips can also be used to draught proof around the letter box on the inside of your door. You can purchase a brush strip letterbox cover from most hardware stores and screw this directly onto the letter box.

**Professional draught-proofing**

- **Concealed brushes** (pictured, right): These are brush strips fixed into grooves cut into the edges of windows and doors, and so are hidden from view. For this reason, they are good in tenements; especially if you’re in a conservation area or listed building. Concealed brushes must be fitted by a professional installer. Make sure you don’t paint over these strips, as they won’t work as well.

- **Fix a ‘swivel cover’ across large key holes for a quick and easy way to reduce draughts.**
Chimneys

Chimneys are another main source of draughts in tenements, particularly where there is one in every room. Closing off your chimney if you are not using it will reduce draughts. Make sure that some air can get through; without ventilation, damp can build up.

Chimney balloons

This is a pillow shaped plastic inflatable which sits inside the chimney. It fills most of the chimney but leaves some small ventilation gaps around the edge. It is simple to put in – put it up the chimney from the fireplace. It can be removed if you want to use the chimney or during the summer to provide more ventilation.

Chimney balloons are available in a range of sizes and in more environmentally friendly materials such as sheep wool. They cost around £25 and are available online or in hardware shops.

Hearth board

This is a decorative board to cover the fire place when the fire is not in use. Remove in the summer for better ventilation.

Boarding up a chimney

This is a permanent measure which must be carried out by a professional. It will reduce draughts more than the DIY methods listed above. Be careful to ensure there is enough ventilation both in the room, and the chimney.

Draughts in walls

We don't often think of draughts coming through our walls but you may find gaps where pipework or electrical fittings have been fitted, this is commonly found inside kitchen cupboards. If possible these gaps should be filled using a sealant.

However you should check with an electrician or heating engineer first as sometimes these gaps have been left for health and safety reasons, or may need to be filled using fire retardant materials.

5 Source: Changeworks (2015) costs research
Floorboards and skirting boards

Many tenement homes have original wooden floorboards. These often have gaps between the floorboards or between the floorboards and skirting boards.

Filling these gaps can make your home feel warmer, especially if you don’t have a carpet. This may cost about £30 per room.\(^6\)

Floorboards were designed to have some airflow under them, so make sure you don’t block up the air bricks or vents in the wall which are needed to maintain air flow under your floor.

Before filling gaps, think if any maintenance is required on or under the floor, because it will be harder to lift the floorboards once the draught-proofing has been fitted. If you live on the ground floor, consider insulating your floor before draught-proofing (covered in Factsheet 4).

Strips and sealant

You can seal the gaps between floorboards and around the edges of rooms using:

- A compression seal: rubber strips pushed in between each of the floorboards and underneath the skirting boards.

- A silicone mastic sealant: a permanent seal is applied using a ‘gun’, sealing the floorboards together. This shrinks over time so you may need to occasionally top it up. If you are filling large gaps, you may need to apply the sealant more than once.

- Papier-mâché: a cheaper option that is best used when a carpet is on top.

Consider using a draught-proofing material the same colour as your floorboards.

Wooden beading

Beading is decorative strips of wood available from hardware stores or online. These can be used to fill larger gaps such as between the floorboards and skirting boards. They come in a range of different shapes and sizes and can be painted the same colour as the skirting board.

FOR MORE INFORMATION about draught-proofing your home, see Historic Scotland’s publication, Fabric Improvements for Energy Efficiency in Traditional Buildings. You can also find more information and watch a video on draught-proofing on the Energy Saving Trust website.

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\(^6\) Source: Changeworks (2015) costs research
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FACTSHEET 4

Insulating your tenement

This factsheet explains how to keep your home warm by insulating your:

- loft or roof
- floors
- walls

Tenements are old buildings and the stone walls are already good at keeping in heat, but there will be areas that can be improved. Adding insulation will keep more heat in your home, making it warmer and saving you money.

Where should I insulate?

You should try to insulate the areas of your home where most heat is lost. Where these areas are can be difficult to determine because tenement homes can vary a lot, but they are probably:

- The roof or loft for top floor flats.
- The floor for flats on the lowest floor.
- The walls in flats at the end of the terrace.

Many tenement homes lose a lot of heat through windows, especially those with large windows such as bay windows. Look at how you can improve these – see Factsheet 2. Also look at draught-proofing (Factsheet 3); this is often the cheapest and easiest way to reduce heat loss.

Ventilation

Remember to ventilate your home. Tenements were designed to have a level of airflow to let fresh air in and stale air out to avoid damp problems. Regularly open windows on warmer days when your heating is off, keep trickle vents on windows open throughout the year, and consider installing an extractor fan in rooms such as the kitchen and bathroom.

FOR MORE INFORMATION about insulating your tenement, see:

- Changeworks’s guide to improving energy efficiency in traditional and historic homes, Energy Heritage.
- The Energy Saving Trust website.
Loft and roof insulation

Most tenements have lofts, which can be insulated. Some don’t and either have rooms that are built into the roof or flat roofs. Both can be insulated.

If you are carrying out roof repairs this is an ideal time to insulate the roof or loft. Flat roof insulation and loft insulation are usually a communal improvement because the roof is usually owned by everyone in your block. Refer to Factsheet 1 for more advice.

Loft insulation

Insulating your loft could save you up to £130 per year if you live on the top floor. You may be able to do this yourself, or you can use a professional installer. Call Home Energy Scotland on 0808 808 2282 for information on possible funding available.

The most common type of loft insulation is insulation matting which can be made of different materials, such as fibre glass, sheep’s wool or hemp matting. The recommended depth for matting is 270mm. If you need to store items in your loft, your installer can advise on the best way to do this, either by building a storage platform or laying flooring with boards of insulation underneath instead of matting. If your loft is difficult to access, the installer may advise you to use blown fibre, a type of insulation that is ‘blown’ into the loft.

You can install many types of loft insulation as a DIY task but you should get more detailed advice to make sure that you do the following appropriately:

- Insulate water pipes and tanks (around the top and sides); otherwise they might freeze.
- Cover electrical wires in a fire retardant material.
- Insulate and draught-proof the loft hatch.
- Leave a gap in the insulation around the edge of the loft. Blocking ventilation gaps could lead to a risk of condensation, mould and timber rot.

TIP!

- Draught-proof your loft hatch to reduce heat loss. See Factsheet 3 on types of draught-proofing; these can be applied to loft hatches too.

Flat roof insulation

Flat roof insulation needs to be fitted by a professional installer. It can be fitted on top of the roof by removing and replacing the felt roof covering. This is quite expensive and only undertaken if the felt needs replacing. Alternatively, it can be fitted below the roof but this is much more disruptive. Check with the installer that there will be enough ventilation into the building.

‘Room in the roof’ insulation

If you don’t have a loft space that you can insulate you can add insulation below the roof itself, between the rafters – wooden beams in the roof. If the rafters are covered up (by plasterboard, for example), this will have to be fully or partially removed to fit the insulation, then put back and redecorated.

Floor insulation

Wooden floors
Many tenements have wooden floors. These are suspended which means air can flow underneath to prevent damp. You can make your floorboards warmer by laying down a rug or carpet with a thick underlay.

If you are on the bottom floor you can also insulate the floor:

- **Underneath**: if you can get beneath the floor, it is much easier to insulate it from below. You can do this as a DIY task or use a professional. You can fix insulation between the joists (wooden beams) using either ‘insulation matting’ or insulating boards. You will need a net to hold it in place if you are using matting or battens if you are using insulating boards.

- **Above**: If you can’t get below the floor, remove the floorboards and fix the netting or battens before fitting the insulation. You might not have to lift all of the floorboards to do this.

Solid floors
If you have a concrete floor you can either:

- **Add an insulating layer**: this is usually less disruptive. A thin insulation material can be used if desired. You can get the installer to lift and re-lay your carpet or laminate flooring on top of the insulation. It is sometimes possible to lift flagstones but take care to avoid damaging them.

**TIP!**

- Draught-proof the gaps in between floorboards and skirting boards, covered in Factsheet 3.
Solid wall insulation

The outside walls of traditional tenements are made of solid stone and can be insulated either from the inside, internal wall insulation, or from the outside, external wall insulation. It can save you around £145 per year².

Solid wall insulation can be expensive and difficult to fit so consider easier and cheaper measures first.

Internal wall insulation

Internal wall insulation is more appropriate for tenements as it has less visual impact once fitted. There are lots of different ways to do this and it costs £20 to £120 per m²³. Get advice from a professional installer used to dealing with traditional buildings.

The internal walls of many tenements are finished with lath and plaster, where narrow strips of wood are fixed to wooden frames and then covered with plaster. If your tenement has this, you need an option that has less impact on the look of the wall. With your installer, consider installing blown insulation beads into the gap between the wall and the frame onto which the plaster is fixed. It probably won’t reduce heat loss by as much as other types of insulation but is cheaper and much less disruptive.

If your walls do not have lath and plaster, you can:

- **Add insulation directly onto the wall.** You can use very slim materials if you want to save space, or thicker insulation boards fixed onto the wall surface. These options can be covered by a plaster finish.
- **Replace the existing wall lining with insulation** such as insulation-backed plasterboard or insulation fixed on a wooden frame and covered with plasterboard or similar. The second option is more appropriate for larger rooms where space is not an issue.

Things to consider

- Using moisture-permeable insulation materials that allow moisture to pass through to avoid damp building up.
- Putting this insulation in can disrupt your home life whilst it is being installed. Consider doing it when you are refurbishing or redecorating. Or do it room by room.
- Things fixed on the wall such as radiators will need to be removed and replaced when the insulation is put in. Your skirting boards, window sills and decorative features such as cornicing may also be affected.
- You may need listed building consent if your building is listed.

External wall insulation

External wall insulation fixes insulation to the outside of the wall covered with a finish, such as render. It is less suitable for most tenements because it changes how your building looks and is only suitable if the whole building is being insulated. Your local authority may not allow it; contact them for more information. Sometimes it may be allowed on the gable end (the end wall of the building) or on the rear of the building.

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Save energy, save money and stay warm: your guide to energy efficiency in tenements

Your heating system

Making sure you have the right heating system to meet your needs is important.

This factsheet explains how to:

• Make the most of your radiators.
• Replace or update your heating system including:
  • gas central heating
  • electric storage heaters
  • wood burning stoves
  • heat pumps

Making the most of your radiators

If you have gas central heating, you can quickly and cheaply make your radiators more efficient by:

• Fitting reflective panels (pictured) behind radiators on external walls. These keep heat in the room, saving you energy and money. They cost about £4 per radiator¹. You can buy reflective panelling in rolls, cutting this to size and slotting behind your radiator. Or, buy pre-formed panels.

• Fixing a shelf just above the radiator. This pushes rising heat into the room, making your home more comfortable. You can also buy a radiator shelf with an in-built fan to push the heat out further: these are suitable for very large rooms.

Avoid using radiator covers (wooden boxes around radiators) as they prevent heat fully getting into the room. If you already have them, make sure the Thermostatic Radiator Valve (TRV) (see Factsheet 6) is outside the cover.

How to use your heating controls is covered in Factsheet 6.

When your tenement was built, it would have been heated by open fires in fireplaces. As modern types of heating developed, many tenement owners changed to electric heating because it was cheap and easy to install. More recently, many home owners moved to gas heating because it is cheaper to run.

FOR MORE INFORMATION on heating systems, see the Energy Saving Trust website or Changeworks’ guide to improving energy efficiency in traditional and historic homes, Energy Heritage.

¹ Source: Changeworks (2015) costs research
Gas central heating

Gas is relatively cheap, easy to use and a very popular method of heating.

Getting a new boiler

You might want to get a new boiler if your current boiler is:

• Broken and it cannot be (cheaply) repaired.
• Over 15 years old as it may not be very efficient. Check the efficiency using the Product Characteristics Database. If it is less than 70% efficient, replacing it could save you as much as £100 a year\(^2\) on your bills.
• A standard boiler rather than a combination boiler – more details below.

Putting in a new boiler costs about £2,300\(^3\). Call Home Energy Scotland for free on 0808 808 2282 for more information and details of possible financial support.

Types of boilers

Standard boilers provide both heating and hot water. The hot water is stored in a separate hot water tank. Combination or combi boilers also provide heating and hot water but the hot water is produced instantly and is not stored in a tank. Combi boilers are cheaper, especially for flats or smaller households, unless you use a lot of hot water. A heating engineer can advise.

All modern boilers are condensing boilers. These are more efficient than older boilers as they recover and re-use waste heat from the exhaust gases. Check your boiler manual to see if yours is condensing: if not, you will save money on your bills by replacing it or when you replace it at a later date.

• Understand how to use your heating controls – refer to Factsheet 6.

Things to consider

• Gas heating systems should be installed by a SNIPEF or Gas Safe registered heating engineer. Use a registered engineer to carry out an annual gas safety check and the boiler service to keep the system running safely and efficiently.
• If you are installing a new gas boiler, a flue will be fitted through the wall of your building. This allows the gases from the boiler to escape. It should be put in a place that does not impact on your neighbours (i.e. right below one of their windows). If you live in a listed building you should make sure the flue is not on the front wall (facing the street) and you may need listed building consent.
• Allow adequate ventilation in the room housing your gas boiler. A heating engineer can advise on this.

\(^3\) Source: Energy Saving Trust (2015)
Electric storage heaters

Storage heaters are commonly used in tenements. They use cheaper electricity overnight to store heat in the heaters ‘thermal’ bricks which release heat during the day.

Storage heaters are more expensive to run than gas central heating, do not provide heat on demand and some people find them difficult to use. However they are low maintenance and don’t require regular servicing.

Newer storage heaters are more efficient. You may decide to replace your storage heaters if they are very old or broken. Putting in newer models will save you money on your heating bills. New heaters will cost about £700 each. You might be interested in installing gas central heating; this is likely to be more expensive as you will need a new boiler, radiators and pipes.

New storage heaters

Modern storage heaters are typically slimmer and take up less space. They are better insulated and keep heat in for longer.

You can also buy smart storage heaters. These give you better control as you can time when you want heat to be released, as with a gas central heating system. You can set the temperature you want to heat the room to. These heaters also contain fans to push more heat into the room and only charge up when needed.

Things to consider

- Modern storage heaters are expensive to buy but you can replace them one at a time, unlike putting in gas central heating.
- Make sure your electricity is set to an Economy 7 tariff (or similar, such as Economy 10) as this will be cheaper. To check this, look at your electricity bill or phone your electricity supplier. If you don’t have an Economy 7 meter, your supplier can install one.
- If you are on Economy 7, you will get seven hours of cheaper electricity, usually overnight. Electricity during the day is more expensive. Using other electric heaters (e.g. fan heaters) regularly during the day is likely to be much more expensive than using your storage heaters.

4 Source: Energy Saving Trust (2015)

TIP!

- Understand how to use your storage heater controls – refer to Factsheet 6.
Heat pumps

There are two main types suitable for homes: **air source heat pumps** (ASHPs) and **ground source heat pumps** (GSHPs). Heat pumps use electricity to take energy from the air or the ground to then heat your home. They are classed as ‘renewable’ because they generate more energy than they use. Because of their running costs, they are best suited to homes where they can replace electric or oil heating, not gas.

ASHPs typically cost around £7,000 – £11,000\(^6\) and GSHPs £11,000 – £15,000\(^7\). You may be able to get **Renewable Heat Incentive** (RHI) funding – see Factsheet 1.

Seek advice on the suitability of your home. Both systems are best suited to homes that are well insulated, draught–proofed and have large radiators or underfloor heating. ASHPs fit on or near an outside wall so are only suitable if you live in a ground floor flat with outside space. GSHPs require outside space such as a garden to bury the pipework. They are not suitable for most tenements due to the space they need.

You will need planning permission for both types of heat pump. You may also need permission from your neighbours if the area you put the heat pump in is shared.

FOR MORE INFORMATION about renewable heating systems call Home Energy Scotland on 0808 808 2282 or go to the [Energy Saving Trust](https://www.energysavingtrust.org.uk) website.

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Wood burning stoves

These are heaters which burn wood to heat the room that they are in. They can be used in addition to other heating systems such as gas central heating and are considered more environmentally friendly because they use wood.

You will need a qualified heating engineer to size and install the system. A stove using wood pellets will cost around £4,300\(^5\) to put in and a stove using logs will cost about half this.

Wood burning stoves can be used in tenements if:

- You are not in a ‘smoke control area’. Check with your local authority.
- Your chimney is in good condition. You will need to fit a flue: this will cost more if you are in a lower floor flat (as it has to go further to reach the chimney top) and you may need planning permission. The flue will need to be swept regularly.
- You have a sheltered space outside where logs or wood pellets can be stored (unless you buy them a bag at a time and keep them in your flat).
- You can get a regular supply of good quality wood, preferably from a local and sustainable source.
- You are able and happy to do the work required to use and maintain the stove. This may involve collecting fuel from outside (sometimes in bad weather), carrying it upstairs and clearing ash from the stove regularly.
- You have adequate ventilation in the room. A heating engineer can check this.

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\(^5, 6, 7\) Source: Energy Saving Trust (2015)

Produced June 2015 by Changeworks for Citizens Advice Scotland as part of Save energy, save money and stay warm: your guide to energy efficiency in tenements.


Changeworks.org.uk Inspiring change for people and the environment
Using your heating controls and saving energy on hot water

This factsheet looks at how you can save energy and money on your heating and hot water.

It covers:
- How to use your heating and hot water controls.
- Saving energy on hot water.
- Solar hot water panels.

Replacing or changing your heating system is covered in Factsheet 5.

Heating controls

Gas central heating

If you have gas central heating, make sure you have the following controls and know how to use them. This can save you £80–£165 per year¹.

- **Thermostatic Radiator Valves (TRVs)** (pictured, right): turn off radiators when they reach the desired temperature, preventing heat being wasted. This means you can have different rooms at different temperatures. TRVs should be installed onto every radiator except one in your home. Putting TRVs onto four radiators will cost about £140–£170². Turn TRVs to a higher setting in rooms that you use often or that need more heating and a lower setting in rooms you use less often or like cooler.

- **Room thermostat** (pictured, left): this is usually found on your hall or living room wall and turns off the heating when the room has reached your desired temperature. Set it to 18°C–21°C. If anyone in your home is elderly or suffering from a health condition you may wish to set it higher. Thermostats cost about £90–£135³.

- **Programmer or timer** (pictured, right): this allows you to set your heating system to turn on and off automatically on different days or at different times. Fitting one will cost about £130–£170⁴.

FOR MORE INFORMATION about using your gas central heating controls, watch this short video on the Energy Saving Trust website.

¹ Source: Energy Saving Trust (2015)
², ³, ⁴ Source: Centre for Sustainable Energy (2015) costs research
Electric storage heaters
Electric storage heaters store heat during the night, which is released into the room during the day. The controls are fixed onto the heaters. To keep your bills low, make sure you know how to use them:

- The **input** control tells the heater how much heat to store during the night. This should be set before you go to bed based on the amount of heat you think you will need the following day.

- The **output** control (sometimes called the ‘boost control’) tells the heater how much heat to let out into the room during the day. Adjust this in the day if you need more or less heat. If you are out during the day, keep the output low until you return so the heat is kept in for as long as possible. If you turn the output control high, you may not have enough heat to last all day.

FOR MORE INFORMATION about using your electric storage heater controls, watch this short video on the Energy Saving Trust website.

Hot water controls

You can save energy and money by knowing how to control your hot water system.

Electric immersion heater
You should have a cheaper overnight electricity tariff (sometimes called ‘Economy 7’ or ‘Economy 10’). Make sure your immersion heater is set to come on during this overnight period – it will be much cheaper than heating it during the day. If you need to, use the ‘boost’ during the day but remember this will cost more.

Hot water tank
If you have a standard boiler in a central heating system (not a ‘combi’ boiler), you will have a hot water tank (pictured, right). Set your hot water programmer or timer to come on a couple of hours before you need it and then turn off when hot water is no longer required. If you need extra hot water, use the ‘boost’. If you have an electric immersion element as a back-up, only use this if your main heating system isn’t working because it is more expensive.

Make sure your hot water tank has a **thermostat**. It costs £50–£805 to install and can save you around £25–£50 per year6 by making sure you don’t overheat hot water. Set it to 60°C to avoid illnesses such as legionella.

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6 Source: Calculations based on DECC and Cambridge Architectural Research (2012) How much energy could be saved by making small changes to everyday household behaviours?
Factsheet 6: Using your heating controls and saving energy on hot water

Saving energy on your hot water

Pipe insulation

Your home has pipes that carry around hot water for your central heating and/or hot water system. These are hot – insulate them to save energy and avoid losing heat. It also prevents people from getting burnt if they touch the hot pipes.

Pipe insulation can be fitted as a DIY task (where you can access pipes) for around £207, or by a heating engineer. To do DIY, buy pre-formed foam tubes which fit around pipes (pictured, right). Make sure the insulation is the right size to fit the pipes and stop heat leaking out. It could save up to £10 per year8.

Hot water tank insulation

If you have a hot water tank (you won’t if you have a combi boiler), insulate it to avoid losing heat. You can buy hot water tank insulation or a ‘jacket’ and fit it yourself. They cost about £15 from DIY stores9. Make sure the jacket is the correct size for the tank and that the whole tank (including the top) is covered without gaps.

Putting a jacket onto a hot water tank with no insulation can save you £115–£140 per year or £25–£35 per year if the tank already has some insulation10.

If you have a very old system, you might want to buy a new hot water tank. Modern hot water tanks are already insulated. They cost about £150–£250 to buy, not including the cost to fit them11.

You might also want to think about changing your heating system. Refer to Factsheet 5.

Waste water heat recovery

This device absorbs heat from ‘waste’ water (such as that from showers or baths) and re-uses the heat to heat clean water. The device is fitted in the waste pipes just below your sink, shower or bath plug hole. They can be quite expensive, around £1,000, and save £20–£30 per year12.

TIPS!

- Have showers instead of baths and take shorter showers! Watch out for modern power showers – they use a lot more water.
- Fit an aerating shower head. This provides the same feel but uses less water.
- Fix leaks! A dripping tap can waste a lot of hot water.

7, 8, 9, 10 Source: Energy Saving Trust (2015)
11, 12 Source: Changeworks (2015) costs research
Solar hot water panels

You can reduce the cost of heating your water by installing solar hot water panels, also known as solar thermal panels. These use heat from the sun to heat water.

Costs and savings

A solar hot water system will save you around £65 – £7513 per year on your energy bills if you currently heat your hot water by gas or electricity. You may also be eligible for the Renewable Heat Incentive (RHI); a UK Government scheme that pays you for generating your own heat. Refer to Factsheet 1.

Solar hot water systems typically cost between £3,000 and £5,00014 possibly more in a tenement.

Solar hot water panels on tenements

Because roof space is limited on tenements it may only be possible to install enough panels to provide hot water for one or two flats. It is easier and cheaper to serve top floor flats as less piping is required, although it is possible to serve lower flats. There may also be challenges in installing this onto a high building.

What do I need to install solar hot water?

- **Hot water demand** – you will save most if you use a reasonable amount of hot water from your hot water tank, for example if you have children or run a lot of baths.

- **A compatible heating system** – you need a hot water tank, not a combination boiler. You will also need enough space for an additional or larger hot water tank.

- **A suitable roof**, with around 5m² of space, ideally south facing and strong enough to hold the weight of the panels.

- **Planning permission** if you live in a conservation area. You may need listed building consent if your building is listed and possibly a building warrant. In some areas solar hot water panels may not be permitted.

- **Permission from other owners** to install onto the roof since the roof is usually shared between owners in tenements. See Factsheet 1 for information on communal measures.

**FOR MORE INFORMATION** go to the Energy Saving Trust website or see Changeworks guide, on solar hot water in traditional homes, Renewable Heritage.
Energy monitors

A good way to work out where your electricity is being used is to try an energy monitor. This tells you how much electricity you are using at a given time and how much you’ve used in the last week or month. It also tells you which appliances need the most electricity.

Energy monitors cost about £30 but you might be able to get one for free from your electricity supplier or borrow one from your local library.
Lighting

About a fifth of our electricity is used for lighting. Traditional incandescent bulbs only convert 5% of the electricity they use into light. Replacing traditional bulbs with low energy light bulbs is a quick and easy way to reduce your electricity bills.

Low energy light bulbs

Low energy light bulbs need up to 80% less electricity than traditional bulbs and last up to 10 times longer. Replacing each traditional bulb with a low energy one will save you about £3 a year or £45 over its lifetime² – replace more and the savings will quickly add up.

There are two main types of low energy bulbs: Compact Fluorescent Lamps (CFLs) (pictured, above) and Light Emitting Diodes (LEDs) (pictured, left). CFLs generally cost less to buy than LEDs but can take a while to light up. LEDs may cost more but the price is coming down.

The quality of CFLs and LEDs continually improves. Both are now available:

- As standard light fittings, spotlights and downlighters.
- In a range of shapes, sizes, colours and brightness levels.
- For both bayonet and screw fittings.
- In dimmable versions.
- In ‘soft’ or ‘warm’ white colour – people often prefer these.

Halogens

Halogen light bulbs are common in spotlight fittings (pictured, right). They use less electricity than a traditional bulb, but a lot more than LEDs or CFLs. By replacing all your halogen spotlights with LEDs, you could save about £30 per year on your electricity bill³.

Striplights

Modern striplights are energy efficient, especially the newer, slimmer versions.

Note: please do not put CFLs or striplights in your normal bin. Instead, take them to your local community recycling centre or low energy light bulb recycling facilities available at some shopping outlets.

TIPS!

- Fit light coloured lampshades to allow more light into rooms.
- Turn off lights that are not in use.
- Can you reduce the number of bulbs you have? Some homes are fitted with lots of spotlights: you might not need them all.

FOR MORE INFORMATION about low energy light bulbs, go to the Energy Saving Trust or Premium Lighting websites.

², ³ Source: Energy Saving Trust (2015)
Electrical appliances

Here are some simple ways you can save electricity on your appliances:

**Fridges and freezers**
- Set your fridge to 5°C and your freezer to -18°C. Buy a fridge thermometer to check.
- Make sure these are working efficiently by:
  - Regularly defrosting your freezer and dusting or hoovering the black ‘fins’ at the back of the fridge.
  - Checking door seals to make sure no cool air is escaping.
  - Positioning them away from radiators, your oven and direct sunlight. If you rent your home, get permission from your landlord to do this.

**Washers and dryers**
- Wash clothes at 30°C and only when you have a full load.
- Avoid tumble dryers – they use a lot of electricity. If you have an outdoor area, dry clothes outside. Inside, use a clothes horse and open windows for ventilation. Don’t dry clothes over radiators – it can cause condensation and is dangerous.

**Computers, TVs, games consoles and mobiles**
- Switch appliances off when you’re not using them. The average UK household wastes £30 a year by leaving them on standby.
- Consider buying a ‘powerdown plug’ – it will automatically turn off the TV and any other entertainment appliances plugged into it.

**Buying new appliances**
Older appliances often use much more electricity than newer models. If you have decided to buy a new appliance, get the most efficient model by:
- Looking at the appliance’s energy rating: red means least efficient and dark green (up to A+++ rating) is most efficient. The labels are based on the size of the appliance; this is to enable you to compare the energy rating between two products of a similar size.
- Thinking about the size of appliance you need. A small TV or fridge-freezer uses a lot less energy than a larger version.

**TIPS!**
- Only boil the water you need – kettles use a lot of electricity!
- Unplug your phone or mobile device charger when it’s fully charged.

FOR MORE INFORMATION about saving electricity from your appliances, go to the Energy Saving Trust or Greener Scotland websites.

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4 Source: Energy Saving Trust (2015)
Solar photovoltaics

Another way to save money on your electricity bills is to generate renewable electricity, although there are limited ways of doing so in a tenement. Solar photovoltaics (PV) are solar panels that use light from the sun to generate free electricity during the day, reducing your electricity bills.

Costs and saving

Solar PV can save you over £100 per year\(^5\) on your electricity bills, depending on the size and performance of the solar panels and how much electricity you use during the day.

A typical system will cost around £5,000–£8,000\(^6\) but this depends on the size of your roof. When buying a solar PV system, the costs will be quoted to you in what’s called kilowatt peak (kWp). For help on how to understand these numbers, see the ‘For More Information’ section below.

Owners of solar PV panels may be eligible for the Feed-in Tariff (FIT); a UK Government scheme that pays you for every unit of electricity you generate – see Factsheet 1.

What do I need to install solar PV?

- A suitable roof facing south-west to south-east with little or no shading.
- Permission from other owners to install onto the roof since the roof is usually shared between owners in tenements. See Factsheet 1 for information on communal measures.
- Planning permission if you live in a conservation area and you might need listed building consent (see Factsheet 1). You might also need a building warrant. In some protected areas and on some buildings solar panels may not be allowed. Contact your local authority for more information.

Solar PV on tenements

Because roof space is limited on tenements it may only be possible to install enough panels to provide electricity for one or two flats. It is easier and cheaper to serve top floor flats as less wiring is required. Solar PV can provide electricity for communal areas. However, if the main use of electricity in these areas is lighting, solar PV may have limited use because it produces electricity during the daytime when lighting may not be required.

FOR MORE INFORMATION about solar PV phone Home Energy Scotland on 0808 808 2282 or go to the Energy Saving Trust website.

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\(^5\)\(^6\) Source: Energy Saving Trust (2015)
More information

- Changeworks (2009) Renewable Heritage: A guide to microgeneration in traditional and historic homes
- Energy Saving Trust: website
- Historic Scotland: Technical Papers
- Historic Scotland: Refurbishment Case Studies
- Low Energy Apartment Futures (2015): website
- Society for the Protection of Ancient Buildings: website

Contacts

- For free impartial energy advice call Home Energy Scotland on 0808 808 2282. Calls are free from landlines and all major mobile networks. Or text ‘Warm’ to 81025 for a call back.
- For advice on consumer issues, contact the Citizens Advice consumer helpline on 03454 04 05 06.