

Energy efficient glazing & high performance external doors

Homes lose 10-20% of their heat through windows and external doors. Installing energy efficient glazing and high thermal performance doors will reduce heat loss, to keep your home warmer and cut heating bills. Glazing can also insulate against external noise.

What to consider first

Before investing in energy efficient glazing or high thermal performance doors, check whether you can create a warmer home with more cost-effective options.

1. You first need to consider the overall insulation of your home. On average 60% of heat is lost through the walls and loft combined. It therefore makes sense to insulate these areas, if possible, before replacing the windows or doors. It can often be cheaper too.
2. Consider draught-proofing or other simple improvements, which are both cost-effective and less intrusive. These include insulated blinds for windows, and curtains for windows and doors, such as using the portiere rod shown. Shutters and secondary glazing are useful for traditional or listed buildings or if you live in a conservation area. (See our factsheet 'Secondary glazing: the low cost alternative to double glazing'.)
3. If a double-glazing window pane is misted inside it means the seal has failed and the pane is no longer providing any insulation. Before replacing the whole window check with a specialist contractor if only the failed pane can be replaced.



Photo: www.jim-lawrence.co.uk

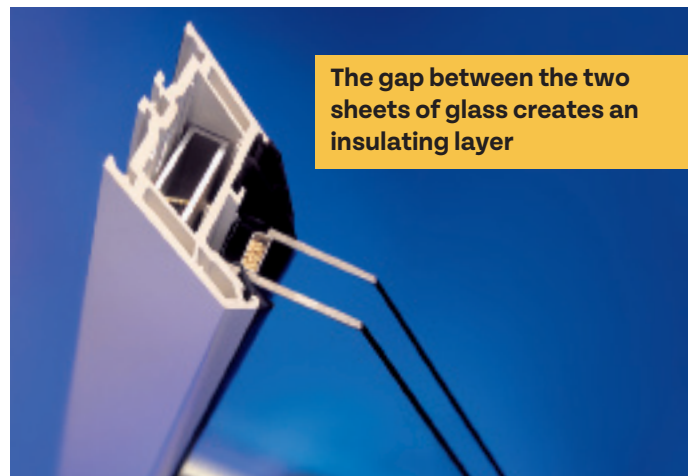


Warm, quiet, comfortable, secure

New energy efficient windows or doors are expensive, so before splashing out it's worth checking whether you can repair or renovate your existing windows or doors first.

Energy efficient glazing - how it works

Generally, energy efficient glazing installed in UK homes is double glazed. This means the windows have two sheets of glass with a gap between them of usually at least 16mm. The gap between the panes may be filled with an inactive gas like argon which creates an insulating barrier to slow down the rate at which heat escapes. Triple-glazed windows have three sheets of glass and two insulating gaps.



The gap between the two sheets of glass creates an insulating layer



The inside pane of the double or treble glazed window units has an invisible metal oxide coating which lets in light and the warmth of the sun, while further minimising the amount of heat that travels out.

Two other aspects that affect the energy performance of the window unit are the material of the window frame, and the material of the spacer bar between the two glass panes. And, of course, the whole unit must fit snugly with no draughty gaps.

How high thermal performance doors work

High performance external doors can be solid, partially glazed or fully glazed. They can be constructed of uPVC, aluminium, timber, or a combination of these materials.

Fully or partially glazed doors will be either double or triple glazed with a thermal barrier between the panes of glass. The glass panes have air or an inert gas like argon between them which prevents heat passing through. Thermal barriers also reduce the level of noise coming in from outside.

Not only are modern doors better insulated, but they are also likely to fit much tighter in the door frame and therefore reduce draughts.



High performance doors (and windows) will make a home warmer and more comfortable

Will double glazing save me money?

How much you'll save on heating by fitting energy efficient windows will depend on many factors including the size of the home and its overall energy efficiency, how it's heated (gas, oil, electricity), if it's exposed to harsh weather, and the number and size of windows being replaced. Generally, the savings are on average £140 for a semi-detached house (via [Energy Saving Trust](#)).

Funding towards the cost of new windows or doors is rarely available, so if you are investing, you'll need to weigh up the cost of the improvement against the savings on your heating bills. The typical lifetime of double glazing is around 20 years (in reality this varies from ten to 35 years depending on the quality of the produce and the installation, and where the windows are situated). Of course, there may be non-financial reasons behind your decision to install energy efficient glazing, including comfort, appearance, noise reduction or home improvement.

Minimum energy efficiency standards

When an external window or door is replaced, it needs to meet current Building Regulations. These take into account the whole window or door, which includes the frame or internal elements, because it is not just the glazing that affects heat loss. For glazing the minimum requirement is either a whole window U-value of 1.4 W or a window energy rating B. New doors require a U-value of 1.4W, or a door energy rating of B.

The U-value is a measurement of heat transfer through a building element like a window or wall. The lower the U-value, the slower heat can move through the element from inside to outside, making it more energy-efficient. U-values can be confusing, and so new windows and doors also have an energy rating, like those on fridges and washing machines. Energy ratings enable you to compare window and door products and choose those most appropriate for your home.

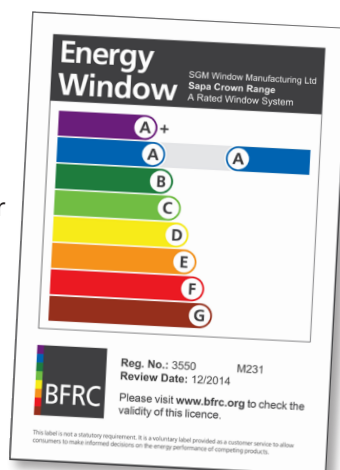
With the British Fenestration Rating Council (BFRC) scheme the highest rating is A++, and the lowest rating is C for windows and E for doors. Other window energy rating labels exist (British Standards Institute, CERTASS) and work in the same way.



Choosing energy efficient windows

There are three main factors to consider when choosing replacement energy efficient windows.

1. Consider the Window Energy Rating you want within your budget, including the type of glass and the window frame material. Material sources and disposal for the glazing unit may also be a consideration. For example some uPVC windows have 80% recycled content for their core material, but can be hard to recycle. Timber and aluminium frames can also be made from recycled content, can last much longer than uPVC frames (if properly maintained) and can be disassembled for easier recycling.
2. What windows will be suitable for the style of property? Do they need to be timber framed to fit with other windows or the neighbourhood? This is particularly important if your home is a listed building or you live in a conservation area, but these windows will need maintenance.
3. When your windows are replaced, it is vital to make sure that the building remains well ventilated, as the replacement windows will be more airtight than the originals. New double glazing is required to have trickle ventilation, even if the windows you are replacing do not. Ventilation allows fresh air into your home, allows moisture to escape and helps to prevent condensation and mould.



Choosing high thermal performance doors

Significant energy savings could be made by replacing old doors as new external doors are generally constructed with integrated insulation to reduce heat loss and comply with building regulations. If fitted individually, a new door could cost in excess of £1,000, but if bought alongside new windows (most window companies will also fit doors) it could work out cheaper. There are other advantages to replacing doors to bear in mind, such as aesthetics, security, noise reduction and fire safety.

Listed homes and conservation areas

If your property is listed or in a conservation area there are likely to be restrictions on what you can do to your windows and external doors, so contact your local authority conservation or planning office to discuss the options available before carrying out any work. If you can't replace the windows, there are several non-intrusive alternatives which can improve the energy efficiency and warmth of your home. These include heavy lined curtains, insulated blinds, internal or external shutters and secondary glazing – or a combination of these.





Choosing an installer

You can find window and door installers on the website of the **Glass and Glazing Federation** (www.myglazing.com), a membership organisation for the glazing sector whose members sign up to a consumer code of practice. They also give advice on buying glazing products and offer a free conciliation scheme in the event of a dispute.

The **Fenestration Self-Assessment Scheme (FENSA)** is a government-backed Competent Person Scheme for the replacement of windows, doors and roof lights in England and Wales. Members registered with FENSA comply to thermal performance standards so that any glazing they install meets standards for energy efficiency. www.fensa.co.uk | **0207 645 3700**

The British Fenestration Rating Council has a 'find-a-product' facility so you can find a door or window by energy rating and find authorised installers and manufacturers.

www.bfrc.org.uk | **020 7403 9200**

The Double Glazing & Conservatory Ombudsman Scheme offers a free service to investigate complaints about work carried out by its members. This includes independent inspections, arbitration and a compensation fund. Accredited installers must offer deposit protection and a comprehensive guarantee to customers. www.dgc.org.uk | **0845 053 8975**



Tips to cut your electricity use, and save money ...



Give your clothes a day in the sun (and give your tumble drier a break). Clothes dried in fresh air feel great.

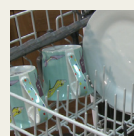
Draught-proof! Fit draught-excluders to your front door, letter box and key hole, and draw your curtains at dusk to keep the heat in.



Only fill the kettle with as much water as you actually need (but make sure you cover the metal element at the base).

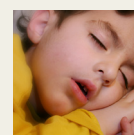
Buying a new appliance?

Remember to check the energy rating label and consider the size.



Wait until you have a full load in your dishwasher or washing machine before doing a wash. Two half-loads use more energy than one full load.

Sleep tight. Make sure all the lights are turned off when you go to bed. You can get low-wattage night lights for children's rooms or landings.



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We're a charity (298740) supporting people and organisations across the UK to tackle the climate emergency and end the suffering caused by cold homes.

Our Home Energy Team offers free advice on domestic energy use to people in central southern and southwest England.

Contact us:

PHONE 0800 082 2234

EMAIL home.energy@cse.org.uk

See all our energy advice pages at
www.cse.org.uk/advice