



Energy Tutorial: Building Fabric

Doors and windows

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Single-glazed windows, or even old and broken double-glazing, can be a significant source of heat loss, especially in homes that have lots of windows and doors. New windows are usually a relative expensive way to save energy but they're well worth considering for homes that can afford it. Whatever type of windows a homeowner wants they should look out for models with a good energy efficiency rating.

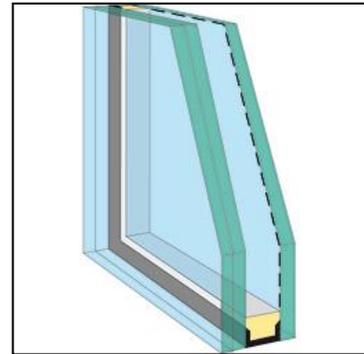
U-values

If you want to assess the energy efficiency of windows you will need to think about U-values. A U-value measures the rate at which heat escapes through a fabric, so the lower the figure, the better. A U-value of zero means that no heat is escaping. It is expressed as Watts per square metre (W/m^2) but it is really only the number that matters.

DOUBLE AND TRIPLE GLAZING

Double or triple glazed windows are another form of insulation. However, it is not generally as efficient as wall and roof insulation. Replacing a single-glazed window with a reasonable quality double-glazed unit will more than halve the heat loss.

The Energy Saving Trust estimates that you will save £165 a year by replacing single glazed windows with B-rated double glazing. You will also reduce noise from outside, and experience less condensation.



However, only about 10% of the total heat loss from the house is through the windows, so there is really no point in putting expensive double-glazed windows in uninsulated walls. Similarly, it's only worth investing in the best triple glazed windows if you have super-insulated the property first.

Glazing

Standard windows will have air in the gaps between the panes of glass. Higher performing ones tend to have argon or other gases between. They will also have a low-E (low emissivity) coating. This allows the heat from the sun into a room, but reduces the amount that escapes again.

Frames

UPVC are a low maintenance option. However, the Centre for Alternative Technology recommends that they should be avoided as their production is energy intensive, and they are polluting at manufacture and disposal.

Alternatives include wood (which needs more maintenance), aluminium and composites which have wood on the inside and aluminium on the outside.

New double glazing is required to have trickle vents in the frames (even if the ones you are replacing do not). This is because modern windows are more air tight than older ones. A trickle vent is a very small opening which allows air to pass through to provide natural ventilation when windows and doors are closed.

Efficiency

Some manufacturers label their windows with an energy efficiency rating from A-E, where A is the most energy efficient and E is the least energy efficient. In addition, those scoring B or above may carry the Energy Saving Trust Recommended logo.



SECONDARY GLAZING

All new buildings must be fitted with double glazing. However, not all old properties are able to be upgraded. If you are in a conservation area or live in a listed building, planning rules can prevent you from installing double glazing, as it would change the appearance of the property. This leaves three possible alternative solutions to reduce heat loss (and increase warmth): draught proofing, secondary glazing and thick curtains.

Secondary glazing

This is an additional pane of glass fitted over the window internally. How sophisticated it is will depend on whether or not you want to open the window (you can get glazing that slides open) or not. The Energy Saving Trust estimates that you can reduce heating bills by £100 per year by using secondary glazing.

The downsides are that they may cause condensation, and the efficiency is not as good because they are not sealed units. The condensation problem can be mitigated a bit by putting packets of silica gel in the air gap (you will have to change them - or dry them out - occasionally). You can use standard draught proofing strips to make sure you get a good seal.

Detailed advice for older properties is available free of charge from English Heritage. [Click here](#) to download its guide to secondary glazing.

Curtains

Heat loss through traditional sash windows can be reduced by 41% by heavy curtains drawn at dusk, according to research by English Heritage.

To be most effective curtains should be hung flush against the wall (not on a pole that leaves gaps at the top and sides). Ideally there should be a pelmet to help trap the cold air that comes in the window behind the curtain.

DOORS

You can improve the energy efficiency of existing doors by draught proofing so that it seals better, and using brush draft excluders. You can also draught proof the letterbox.

When buying a new door, uPVC doors tend to be most energy efficient. However, as mentioned above, they also use more energy in manufacture and lead to more pollution at manufacture and disposal. Specialist manufacturers do make very insulated wooden doors, but they tend to be significantly more expensive.

FURTHER RESOURCES AND INFORMATION

Check out these YouGen blogs for more information about doors and windows:

- [The best way to draught proof an old window or door](#)
- [How to make your windows more energy efficient](#)