

DIY secondary glazing

A practical guide for sash windows around Dartmoor:
beat the draughts, keep cosy and cut your bills!



10 homes in Ashburton were recently assessed, to see how they could save energy as part of an Ashburton Futures project — Making Ashburton Homes Fit for the Future — supported by Dartmoor National Park Authority (DNPA).


In this guide we aim to show you:

- why secondary glazing can be a great low-cost solution;
- a step-by-step guide to DIY installation;
- other important issues to consider.



Making Ashburton-Style Homes
Fit For the Future

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Why DIY secondary glazing for sash windows?

- Secondary glazing will reduce draughts and make you warmer, can significantly reduce heating costs and help minimise noise.
- With old sash windows, more heat is typically lost from the draughts around sash windows, than across the glazing itself¹, so like double glazing, well-fitted secondary glazing can almost eliminate draughts, but at a fraction of the cost.
- It can be done very discreetly without any damage to the original window.
- With high quality acrylic or polycarbonate there are no scratches or marks.
- Dartmoor National Park Authority has advised that planning permission is not required for the installation of the secondary glazing described in this leaflet including to those homes within the Conservation Area. For listed buildings it is important to consult your local planning authority's Conservation Officer for advice before installing secondary glazing. Listed Building Consent may be required in some cases.

Our Project in Ashburton

Part of the MASHFFF project was an air-pressure test on 10 homes. By sucking air out of the house with a powerful fan we could measure the leakiness and precisely locate the draughts.

For all of the five older properties that were audited, it was found that around a third of heat is lost through draughts. In comparison a typical UK home only loses around 15% through draughts².



In these older homes there are often limited options for making them warmer and cheaper to run, due to their age and construction. Draught-proofing is often overlooked, but should nearly always be at the top of the list of options for reducing fuel bills at the lowest cost.

A local solution

One household that we visited had developed its own simple yet highly effective DIY glazing for approximately £60 per window (you'll have to pay many times this for professionally installed secondary units). When we carried out the pressure test there was no discernible draught and what's more you could barely tell that the secondary glazing was there, as it was so discreet. Installing the glazing requires relatively basic DIY skills.

¹ Research into the Thermal Performance of Traditional Windows: *Timber Sash Windows* (report for English Heritage by Glasgow Caledonian University, 2009).

² Energy Saving Trust

Tools and materials needed:

- Drill
- 3mm drill bit (preferably a bit blunt to minimise cracking)
- Posi-drive screwdriver
- Scissors
- Tape
- Permanent marker pen (to mark the film covering the plastic)
- Acrylic or polycarbonate sheeting (4, 5 or 6mm) the bigger the window the thicker the plastic you'll need
- Screw cover caps 6-8mm plastic white
- ¾ inch or 19mm plasterboard screws (less likely to split wood than normal screws) - enough for 30cm spacing around window edges
- P-section EPDM rubber draught-proofing strip (not foam as it degrades) you will need enough to surround the edge of each window



Preparing and installing your glazing

Step 1

Measure all window dimensions, along top, bottom, left and right. The secondary glazing will screw onto the beading as shown in the picture above, which is relatively easy to replace and avoids drilling into the original sash box. Check the window has right angle corners by measuring the diagonals to check they are the same (many older windows are a bit wonky)! Creating a paper template is strongly recommended before paying for the plastic to be cut. You want the edges of the window to fit over to the outside edge of the wooden beading – and you will screw the plastic sheet into the beading.

Please note that Listed Building Consent may be required if the bead is to be replaced or substantially altered. Consult your local planning authority's Conservation Officer for advice prior to any work.

Step 2

Decide whether you want Acrylic (considerably cheaper and not quite so light) or Polycarbonate (stronger and clearer but more expensive). Both have similar thermal properties.

Find someone to provide your plastic (our example house used **Abbey Plastics in Newton Abbot** – competitive prices and good quality plastic with no scratches. They can cut it exactly to size, even if you don't have right angles. You may want to search around for other providers).



Step 3

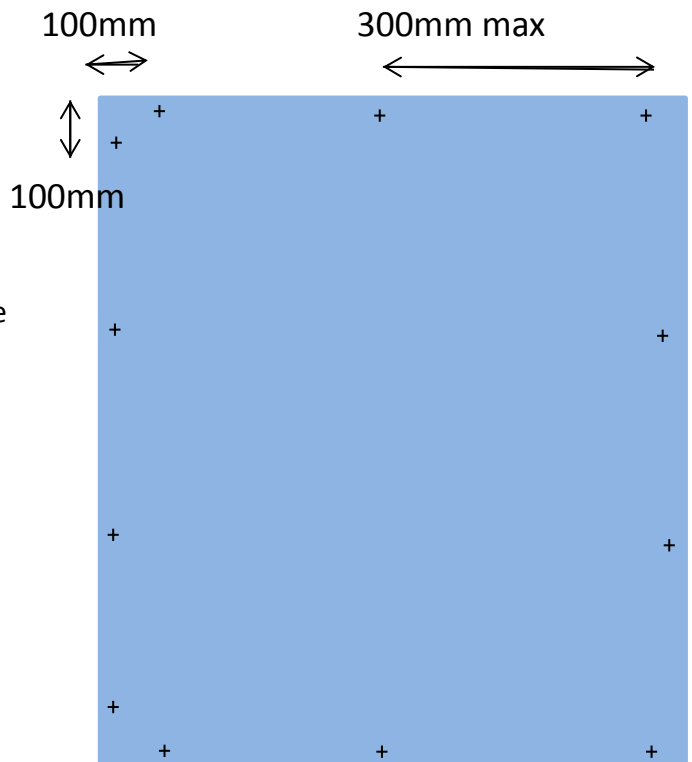
Once you have bought the plastic, offer it up to the frame to check that it fits against beading. Clean the beading with spirits and also the window that you are about to cover.

Step 4

Cut lengths of P strip as shown in picture to the left (if the windows are uneven you can build up two layers if necessary to make a better fit). The fat bit of the P needs to fit against the outside edge of the beading, fitting over the gap between the window and the sash box.

Step 5

Measure out the hole's centres and mark each with a cross. These should be around 100mm from the corners to prevent the corner breaking off. The holes should be half the width of the beading in from the edge. E.g. if the beading is 3cm wide, make the holes 1.5cm from the edge. Measure out holes spaced around the edge of the plastic, choose a spacing to suit, up to 300mm between holes. When all are marked, drill them with a scrap of wood behind, using the 3mm drill bit. It is worth drilling the holes for the top into the beading first and then attaching the screws. The remaining screws can then be drilled directly into the beading with the glazing in place.



Step 6

If a hole cracks, drill a 1mm hole at the end of the crack to provide stress relief and stop the crack spreading further (see picture to left)

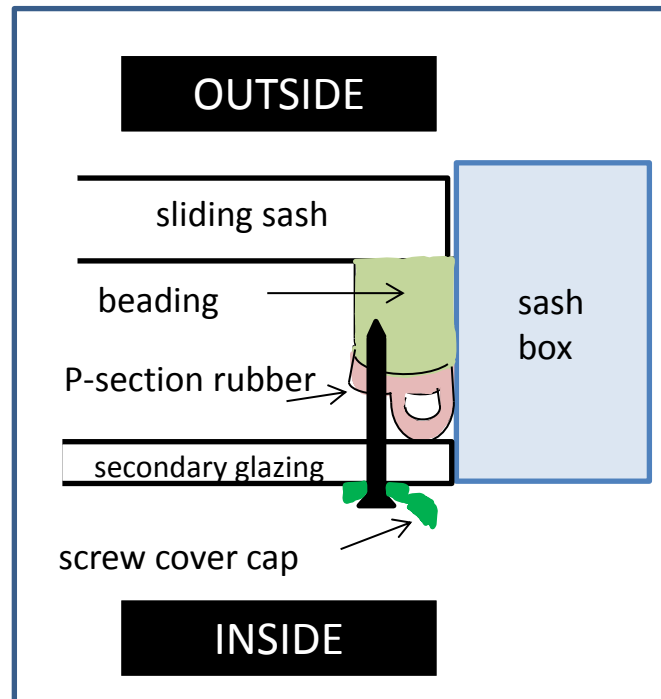
Step 7

Remove inner protective sheet of film (from the side that will be facing the outside). Position the sheet in the window. Fit the top centre screw first, screwing through the screw cap. If using a power screwdriver use a slow speed setting, otherwise tighten loosely. Next, secure bottom left and right screws, before remaining screws alternating left and right. This ensures that the force is distributed evenly and helps prevent damage.

Step 8

Close the caps and pull off the outer protective film. This will tear away from around screws, but this doesn't matter.

Stand back and admire your window!



Condensation

Condensation occurs as a result of a combination of inadequate heat, inadequate ventilation and excess moisture. Many people assume that their damp problems are due to inadequate ventilation and are therefore reluctant to tackle draughts, whereas the problem is often a more complex combination of poor insulation, under-heating and a failure to control moisture.

Unless your home is very cold, then fitting secondary glazing should not lead to the build up of condensation and mould. To be sure, it is worth taking all possible steps to minimise the production of moisture:

- Use extractor fans when cooking or in the bath/shower, alternatively open a window briefly when creating any steam, closing the door to the rest of the house.
- Keep lids on saucepans.
- Ensure your home is insulated where possible in order to create a warmer home that is less susceptible to damp and cold.
- Ensure that rooms prone to damp are adequately heated.

If your home is very prone to damp problems then you may want to avoid secondary glazing the kitchen and bathroom, or if severe, then avoid it altogether and first investigate the source of damp.

Tackling other draught sources

There are often many other draught sources which are cheap and easy to tackle. To accurately identify them all requires an air-pressure test. However, there are many sources which are obvious and can be easily minimised.

Open chimneys

All of the Conservation Area homes which were audited during the MASHFFF project had open chimneys. These are a major source of heat loss and can be cheaply, easily and discreetly blocked using a chimney balloon or “plumbers balloon”.

Doors

Many older doors have various holes, cracks, gaps and leaky letter boxes, many of which can be treated with a range of simple, cheap draught-proofing materials.

Loft hatches

Our project in Ashburton found that most people’s lofts were letting heat escape (even those with insulation). They can be cheaply and easily draught-proofed.

Pipework

Look out for places where pipework leaves the building and is poorly sealed. Often there are significant gaps in these places.

Suspended floorboards

Gaps in floorboards are increasingly common with the current trend for exposed floorboards. These can be easily filled with narrow strips of timber, floor sealant or a mix of sawdust and glue.

Further information

www.ashburtonfutures.org.uk – information on the Making Ashburton Homes Fit for a Future project including links to videos of energy saving opportunities for local homes.

www.english-heritage.org.uk – excellent information on secondary glazing in listed buildings and areas of historic interest. Look for the document, *Energy Efficiency and Historic Buildings: Secondary Glazing for Windows* plus a wide range of other reports.

www.cse.org.uk/warmerbath.pdf – *Warmer Bath*: report looking at energy saving measures for historic homes in Bath, including secondary glazing.

www.planningportal.gov.uk – The Planning Portal for information on planning and listed building consent and details of how to contact your local planning authority.

www.dartmoor.gov.uk – For information on Dartmoor and guidance on planning and development within the Dartmoor National Park.

www.anahatenergy.com – local energy consultancy who carried out MASHFFF project consultancy, and provide energy audits, air pressure testing and thermal imaging.

www.swdcep.org.uk – South West Devon Community Energy Partnership, a community and local authority network working towards a sustainable future for energy.