



tenement fact sheet

2 Draughtproofing of doors and windows, and between floorboards; secondary and double glazing

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২ 阻隔氣流、和 第二重及雙層玻璃窗

২ موانع التيار الهوائى للأبواب و التوافذ ذات الزجاج الفردى و المزدوج

২ گھر میں ٹھنڈی ہوا آنے سے روکنا، اور سیکنڈری اور ڈبل گلیزنگ (اضافی ٹیشوں اور ڈہرے ٹیشوں کا استعمال)

This is the second of six fact sheets on ways to improve the energy efficiency of traditional stone-built tenements. It describes draughtproofing of doors, windows and between floorboards, how this can impact on the look of original features, and how they can be maintained. It explains why, what, where and how draughtproofing is appropriate. It refers to the relevant standards, sources of funding and further information. It states where draughtproofing should not be fitted. This is to avoid condensation, to maintain the use of fuel burning appliances, and to ventilate areas where noxious air or fumes could be a health risk. This factsheet also includes information on secondary and double glazing.

Why install draughtproofing and what are the benefits?

About one sixth of all heat in a home escapes through gaps around windows and doors. Draughtproofing windows and doors reduces fuel use by up to 15%. Savings on fuel bills repay the cost of this work in 3 to 5 years. Draughtproofing an 'average' home costs about £200, using contractors and prefabricated materials, which are usually applied to the door frame or window frame. Do-it-yourself costs are lower at

around £80 and the pay-back is 1 to 2 years. Complex draughtproofing of windows, within the frame, costs more and is carried out by specialist contractors. However some specialist suppliers sell do-it-yourself kits.

Reducing draughts increases comfort and lowers heating costs. Rooms are often overheated to compensate for draughts. Condensation occurs when warm air hits a cold surface, and this can be alleviated by draughtproofing, making rooms easier to heat. Draughtproofing also provides some noise reduction and dust exclusion. The costs and benefits of draughtproofing make it an attractive alternative to double or secondary glazing.

What is draughtproofing and where can it be installed?

All types of wooden and metal windows can be draughtproofed, including casement, top-hung, and sash-and-case. Draughtproofing varies for different window and frame types.

Access to parts of certain window and door types is essential for on-going maintenance purposes sash-and-case windows need to keep the use of 'easyclean' hinges and for the beadings to be removed. These give access to the 'case' to allow broken

sash cord to be replaced. Allowance also has to be made for the continued operation of handles, catches and locks.

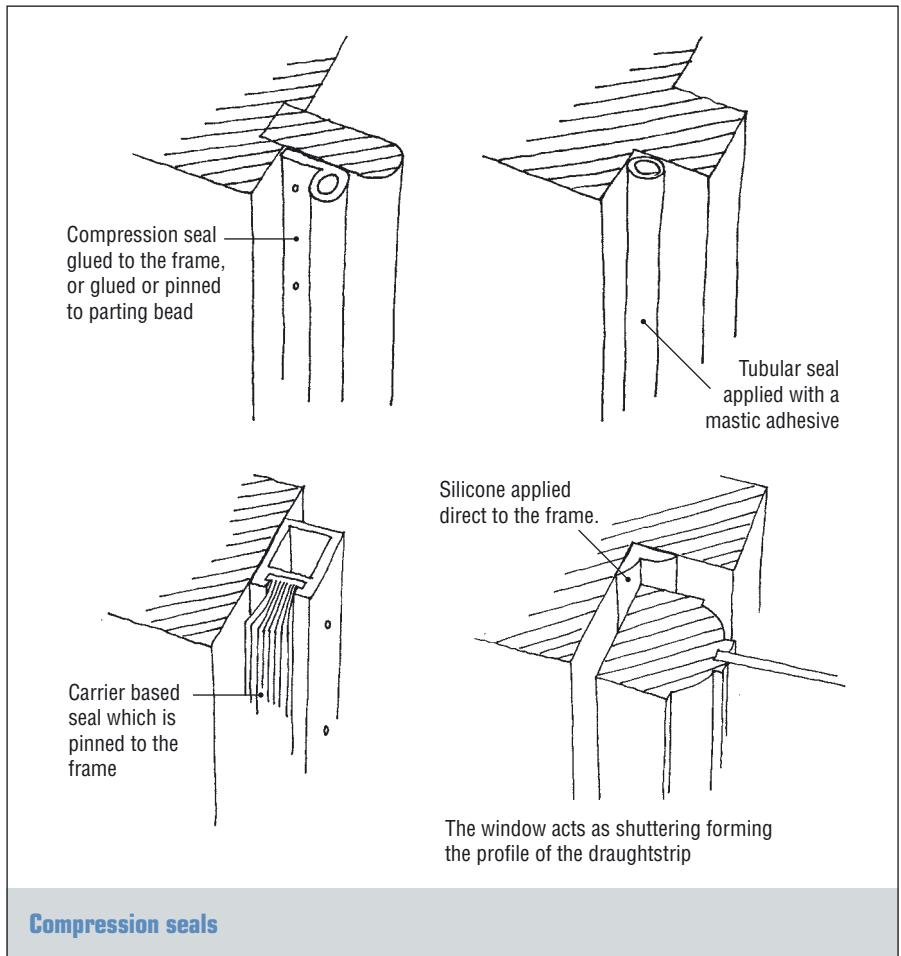
There is a range of draughtproofing techniques, materials and products.

Compression seals, carrier-based and tubular seals, and gap filling seals including gun-applied silicone sealant

These are fitted to the rebate or frame of doors and windows. They squash when the door or window is closed, so the space between the door or window and the frame is kept to a minimum. To maintain compression the seals have a 'memory' returning to their original profile, so compression is constant, whenever the door or window is closed.

Compression seals are usually held in a metal, plastic or wooden carrier with pre-drilled fixing holes to ensure that the carrier is adequately fixed, and reducing the visual impact of random fixings. Fixing through the carrier avoids nailing through the draughtproofing and maintains its 'memory'. When the carrier has been cut to length, the last fixing at the cut end of the material must be less than 25mm from the cut end. Cut ends should be sanded to avoid snagging skin or clothes.





Seals in a carrier are used on all sides of window surrounds or frames. Where a gap varies in size the materials have to allow for these differences, various frame types and seasonal variations, particularly in wood.

An alternative is tubular material fixed with adhesive. This is fitted within the door or window frame.

A further alternative is silicone fitted to the window frame. The window is closed to act as a temporary mould before the silicone sets. The edges of the window, which are normally in contact with the frame, have to be coated with a release agent to prevent adhesion to the mastic.

Otherwise the window will remain 'stuck shut' and inoperable.

Satin anodised aluminium carrier is recommended for external situations exposed to the elements, whereas plain aluminium carriers can be used for draughtproofing doors to closes. Other coloured and decorative coatings are available including brass finishes.

All material in carriers will be visible. Alternatives, particularly those in wooden carriers, may be preferable in historic properties. The effectiveness of brushes or blades in carrier based material is significantly reduced by overpainting. The carrier can be painted to match the door and/or frame to make it less obvious.

Low friction seals

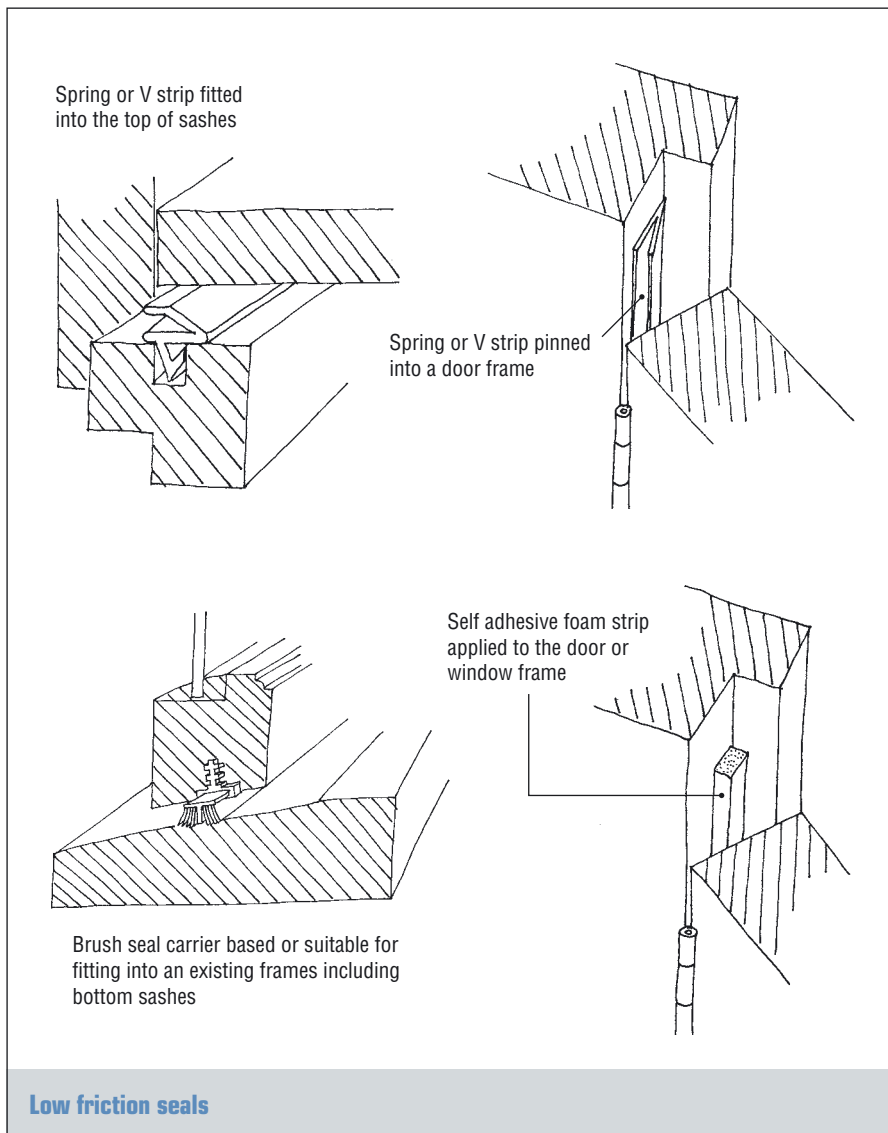
These are either in carriers or as a loose strip. The carrier-based seals including blades, wipers or fine brush pile, are pinned or screw fixed. The blade, wiper or brush rubs against the closing window or door. Some types of angled and bladed material are designed for draughtproofing sash window meeting rails.

Low-friction seals that are not in a carrier include 'V' shaped material, fixed at the meeting rail of sash windows or the rebate of the window frame.

A common form of DIY draughtproofing is adhesive-backed foam strip. This is very low cost, but does not meet any of the British Standards, has very limited life and is not recommended.

Brushes can be installed in the sides of sash windows, where the case is adjusted to accommodate these. This is particularly relevant to architectural conservation work, where the draughtproofing materials have to be situated within the frame, and out of sight.

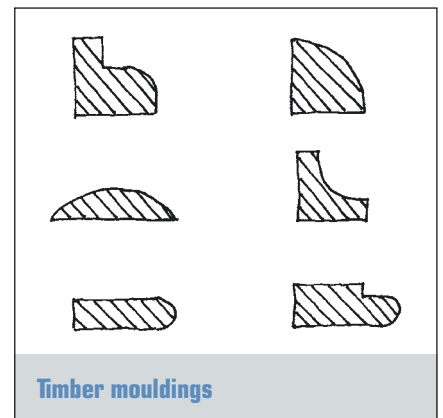
The bottom edge of doors are draughtproofed with carrier-based door bottom brushes fitted to the back of the door, in the direction in which the door closes. This is an alternative to having raised thresholds. Inward-opening doors have draughtproofing attached to the outside. Outward-opening doors



Wooden beadings including staff beads and button rods

Wooden beadings are an alternative to using plastic or metal carrier based material. Customised staff bead or baton rods with integral low friction seals are available from specialist contractors and suppliers.

Wooden beadings can also be applied to skirtings where these meet the floor to bridge any gaps which cause draughts.



Other draughtproofing materials/factory assembled

Existing letter plate openings: Plastic frame and brush assemblies are available in different sizes. These are screw-fixed to the inside of the door. New letter box openings have to be fire resistant.

Mastic

Gunned silicone mastic can be used to fill gaps between the window sub frame and interior walls. It can also be used to fill gaps between floorboards. An alternative low cost way of draughtproofing floorboards is to use papier mache.

are draughtproofed internally. There are different types of carrier, including those for use externally. These include plastic, and aluminium. Plastic carriers used outside are not affected by bright sunlight and other weather conditions. Door bottom brushes have to be strong enough to withstand the impact of wheelchairs, prams and bicycles.

After cutting to length, door bottom brush materials have a tendency to creep. To avoid this, the brush

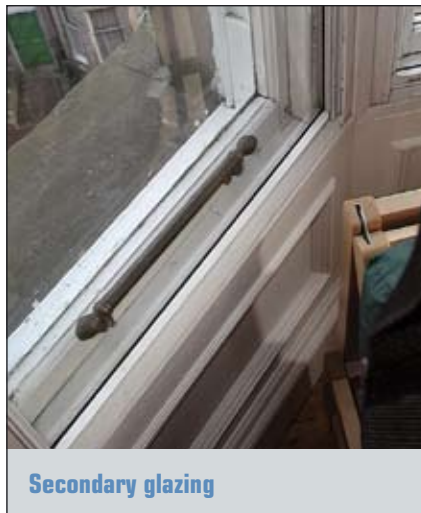
material should be cut shorter and held in place by crimping both ends of the carrier. The last fixing must not be more than 25mm from each end. Cut ends must be sanded to avoid snagging floor coverings, skin or clothes.

All carrier-based material is visible and alternatives particularly those in wooden carriers may be preferable in historic properties. The effectiveness of brushes or blades in carrier based material is significantly reduced by overpainting.

Secondary glazing and double glazing

Heat loss through the panes of windows and doors can be cut by secondary or double glazing. Double glazing is not a cost effective way to reduce fuel costs when the capital costs of installing the windows is taken into account. Double glazing is also, contrary to popular belief, not a significant way of providing sound insulation. Effective acoustic glazing requires at least 200mm between the inner and outer pane of glass, whereas the most effective gap for heat retention is 20mm or less.

Where the window requires replacement at any rate double glazing as a minimum is required under the Building Regulations, The options may be influenced by local planning controls/listed building consents. Even where planning controls are not an issue the introduction of double glazing, particularly in UPVC or metal which might change the pattern of glazing in older tenemental property, which can significantly affect the overall look of the property, and may impact on its value. Any double glazing you plan to install must comply with building control requirements, such as opening inwards for cleaning, and minimum energy efficiency standards



(U values). The energy efficiency standard for windows with plastic or wooden frames is double glazing with low emissivity glass. Some low emissivity glass has a coating which is visible and makes it unsuitable for use in conservation areas. The energy efficiency standard for windows with metal frames is triple glazing with low emissivity glass. Secondary glazing is an effective alternative, which may provide on going access to and operation of the original window.

Secondary glazing is often a financially attractive alternative. The glazing pattern should match the existing window. In certain historic areas secondary glazing is not permitted. Secondary glazing should allow for on-going access to, and operation of, the original window, and possibly allow for its removal in warmer weather.

Ventilation

Gas and solid fuel appliances require fresh air both to operate and to avoid the build up of noxious fumes. Where there is no form of air vent in the room, it is recommended that the windows to that room are not draughtproofed.

Any rooms with condensation should not be draughtproofed. The cause of the condensation should be tackled first. Rooms where airborne moisture is prevalent should also not be draughtproofed except where a fresh air ventilator in the wall or window is already in place.

Sources of funding/grants for draughtproofing and further information

There are various grants for draughtproofing and other energy efficiency measures.

For details contact the local Energy Efficiency Advice Centre on 0800 512012.