

# INFORM

INFORMATION FOR HISTORIC BUILDING OWNERS

## External Timber Doors



HISTORIC SCOTLAND  
ALBA AOSMHOR

## Introduction

This INFORM gives advice to owners of traditional buildings on how to care for external timber doors. It briefly outlines the history and development of external timber doors in Scotland; explains door construction; and gives guidance on identification of defects and suitable methods of repair.

Original timber doors are an important aspect of the character and authenticity of traditional buildings. Their proportions, together with the detail of mouldings, panelling and door furniture, are an important element of the character and significance of a building. As they are moving parts of a building, normally in frequent daily use, they are also subject to significant wear and tear (Fig. 1).

## Brief history of timber doors

Traditional Scottish external timber doors, of the type found on many houses and tenements, are normally made of pine or, occasionally, hardwoods such as oak. The door surrounds are sometimes decorated with columns, fanlights, canopies and classically inspired pediments.

External doors have a number of functions. As well as providing access to the property, they are designed to provide privacy and security to the occupants. External doors need to be robust to resist the weather, and substantial enough to provide resistance to the passage of heat, sound and draughts. In many parts of Scotland storm doors that open into a small vestibule, enclosed by a further set of glazed doors, are common. In the winter these storm doors offer protection against the climate and in summer they can be fully opened to display the often impressive vestibule area and signal that the occupants are at home to visitors (Fig. 2).



*Fig. 1 External doors are subject to considerable wear and tear.*



*Fig. 2 Outer door opened to reveal vestibule.*

Georgian houses were often built with fanlights above the main entrance door. Fanlights allowed greater light to enter hallways and could be extremely ornate in design. In the 19th century improvements in transportation and increasing demand led to mass production of timber doors and standardisation of designs. Developments in lock technology such as the invention of the first Chubb Detector Lock meant that traditional doors could be made more secure. Towards the end of the 19th century more elaborate detailing and moulding became fashionable, with arches and circles common designs. By the 1870s decorative coloured or etched glass was frequently incorporated into designs. Doors were usually painted or, where high quality hardwoods were used, they could be varnished or oiled as a finish.

After the First World War Victorian buildings fell out of fashion, and external doors began to be replaced with simpler modern designs. By the mid 20th century panelled doors were seen as outdated, and were often covered over with solid wood or plywood panels to bring the buildings ‘up to date’. Nowadays they are valued as a ‘period feature’ and there is usually a desire to retain and repair original doors.

## **External timber door construction**

Timber doors were made by joiners in workshops using a basic range of tools. Known as ‘bench joiners’, they also made windows and other timber elements. An external timber door is constructed from vertical framing members (stiles) which run the full height of the door, and horizontal framing members (rails) at the top and bottom, usually with a middle rail and additional horizontal rails to give added strength (Fig. 3). Locks and hinges are fixed onto or within the stiles. Further vertical framing members called muntins run between the horizontal rails.

The rectangular sections between the stiles, rails and muntins are called panels. These are either flat or with a raised pattern or fielding to give additional modelling. In all but the most simply detailed work, panels have mouldings around the edge. Often this is simply a raised bead.

Doors were constructed using mortice and tenon joints tightened up throughout by small wedges drawn into the tenon. The panels were held in place by being inserted into grooves cut into the door framing members. This construction allows the timber panels to move slightly as the timber expands and contracts with ambient changes in temperature and humidity.



*Fig. 3 The components of a traditional timber door.*



## Common faults in timber doors

External timber doors can develop faults, often due to lack of maintenance. A build-up of paint or swelling from seasonal changes in humidity can result in 'binding', where the door and frame rub together. This prevents the door from opening and shutting smoothly and may cause it to stick or jam. Changes in humidity can result in joints becoming loose. Shrinkage (from wetting and drying) or impact damage can cause door panels to split (Fig. 4).

The bottom of the door can be vulnerable to timber decay where it comes into contact with damp stonework or rainwater splashback. This is more common where paintwork has been poorly maintained. General wear and tear can also occur to the handle of the door, while faulty or loose hinges can cause the door to sag leading to creaking or rubbing against the frame.

## Methods of repair

Where a fault develops in a timber door repairs should be carried out as quickly as possible. Replacement of the whole door should only be considered if it is genuinely beyond repair. Whilst a skilled joiner should be able to treat more serious faults, basic repairs can be carried out easily by the householder. In most instances a careful repair should be less expensive than a total replacement and will extend the door's life.

Binding doors can be carefully planed or sanded to allow smoother opening and closing. Damaged boards can be removed and replaced with appropriate moulded counterparts which can be manufactured by an experienced joiner.



*Fig. 4 Shrinkage or impact damage can cause door panels to split.*



*Fig. 5 A new piece of timber spliced in to replace a rotten section.*

Rotten or soft wood can be treated by the affected timber being cut away and new treated timber being carefully spliced into position (Fig. 5).

Loose or worn hinges should be replaced. If screw holes are damaged the insertion of small glue-soaked timber dowels into the holes may be necessary to ensure a stronger fixing. Hinges should be kept lightly oiled to eradicate cracking and reduce wear. Loose joints can be addressed by the insertion of new wedges and re-gluing.

Such repairs may require the door to be taken off so that cramps can be used to apply the required pressure to tighten up the loose joint whilst the glue sets (Fig. 6).



*Fig. 6* Doors may need to be taken off for repairs.

Excessive paint build-up can be removed by the use of a hook scraper, care being taken not to scar or gouge the timber. Split panels can be repaired by loosening them and re-gluing the broken pieces in situ.

Original latch mechanisms are often robust, simply made and capable of repair (Fig. 7) but where renewal is necessary, ensure that the replacement lock has a long enough 'throw' (this is the distance between the edge of door and the handle). New mortice locks and rimlocks can be added to upgrade the security of a door. New sections of timber can be spliced in to repair holes left by ironmongery which has been removed. These sections are traditionally a lozenge shape.



*Fig. 7* Original latch mechanisms are often robustly made.

## Door replacement

Unless severely neglected, it is rare for a door to suffer so much decay that complete replacement is required. In the exceptional circumstances where replacement is necessary the following guidelines should be followed:

*The original frame should be retained.*

This maintains the character and proportion of the building's façade. Ensure that the new door is properly recessed into the opening. This gives the door better protection from the elements.

*The proportions, mouldings and numbers of panels should be replicated.*

All original door ironmongery such as letterboxes, door knockers and handles should be retained and reused. Any replacements should be like-for-like, appropriate to the period of the house and its surrounding area.

*Materials, design and paint finish should be matched.*

One of the best paint finishes for timber doors is a linseed-oil based paint. Some modern paints may not give such good protection or aesthetic appeal and are less able to cope with expansion and contraction. External doors should be re-painted regularly before paint becomes too worn. In normal exposure, standard gloss paint generally requires reapplication every four years.

*Listed Building Consent may be required for alterations.*

This includes replacements or changes in design or materials. Consult the Local Planning Authority prior to carrying out or instructing any works to listed buildings. Some additional controls to external doors may apply to unlisted buildings in Conservation Areas.

## Energy conservation

Poorly fitting external doors can be a source of heat loss and draughts. The easiest and most cost effective way of improving the energy efficiency of doors is to install weather stripping around the door frame (Fig. 8). Weather stripping should not impede the movement of the door. The installation of unobtrusive brush barriers, fitted to the underside and bottom rail of the door can provide excellent draught and noise proofing at very little expense.

Many traditional timber doors are robust and, if maintained, will keep the heat in well. However, where external doors have thin panels, the thermal performance can be improved by the insertion of thin insulating boards into the panel recess on the internal face.

Please see Historic Scotland INFORM and Short Guides on *Improving Energy Efficiency in Traditional Buildings* for more information.



*Fig. 8 Weather stripping can reduce draughts.*

## Conclusion

Over the past few decades many traditional timber doors have been replaced with modern doors made from composite materials or uPVC, with inappropriate details such as integral fan-lights. These products not only alter the character and appearance of a building but they will not last as long as a traditional timber door that has been maintained correctly. Modern doors cannot easily be repaired and will need replacing at intervals over a building's lifetime. Such products are not normally permitted in listed buildings and are not generally suitable for other traditional buildings.

The quality of timber used in many traditional external timber doors is expensive and hard to source today, and door furniture is often carefully crafted and much better quality than modern replicas. Where a traditional door survives, repairing and maintaining the original door rather than replacing it is more cost effective and sustainable in the long run. It will also do much to retain the character and appearance of a traditional building.

## Further reading and contacts

*Care for Victorian Houses – Number 1: Doors*,  
The Victorian Society (1992)

*Period House: Complete Care & Restoration*.  
Jackson A. and Day D., HarperCollins (2005)

Historic Scotland's INFORM Guide and Short Guide series contain further information on the conservation and maintenance of traditional buildings. INFORM and Short Guides are free and available from our technical conservation website, address below. Alternatively, you can contact us on  
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