

SHADBOLT DOORS

Handling, installation and
maintenance guide

STALLS

Handling, installation and maintenance guide



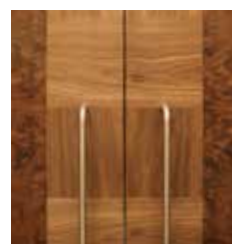
Handling, installation and maintenance guide

The Shadbolt handling, installation and maintenance guide is intended to provide a general guidance document for reference by Specifiers, Architects and anyone else involved in working with or using Shadbolt Doors and Doorsets.



Contents

1. Fire Doors	Page 4-7
2. Delivery and receipting	Page 8-9
of goods	
3. Identifying the product	Page 10-13
4. Site storage of doors	Page 14-17
5. Installation	Page 18-33
6. Installation of Door	Page 34-41
Hardware	
7. Handover	Page 42-43
8. Maintaining your Fire	Page 44-47
Doors	
9. Troubleshooting	Page 48-51





1. Fire Doors

The regulations

Fire doors - The basics

A Fire door is a door with or without a frame, which has been tested and proven to form a barrier which will stop a fire and if required smoke at that point for a defined period of time. The testing of these doors is a standardised test to either BS 476-31.1 or EN 1634-3 and the testing must have been carried out by an accredited test house which is covered under the UKAS scheme to ensure the test is to the set requirements.

When a building is in the planning stage a combination of the relevant building regulations, and an agreed upon fire plan will dictate which of the doors in a building will have to be fire doors, and what their performance will have to be.

These doors will be defined as such for a few specific reasons:

- Providing set evacuation routes from all points of the building to outside and protecting them for a set period of time
- Ensuring that the above evacuation routes are in place for sufficient time to allow people who cannot evacuate quickly to get to safety.
- Provide emergency services with a safe route to access the building to aid the evacuation and if possible fight the fire.
- Reduce the spread of damage caused by fire and smoke from other areas of the building. This is done by forming set compartments within the building.
- Additional protection for some doors on rooms with a higher risk of fires starting inside, for instance kitchens or IT rooms.
- Client or insurers requests or additional protection for specific rooms which contain valuable items which require additional protection.

Building regulations

Building regulations are documents controlled by the government which set out clear and detailed standards which have to be achieved for any construction project. They also refer to the related British and European Standards.

The regulations also vary depending on which region of the UK the building is being constructed in, for instance in England and Wales, fire safety is governed by Approved Document B of the building regulations. But in Scotland it is covered by Technical Handbook 2 and in Northern Ireland they adhere to Technical Booklet E.

Approved Document B is only one of a range of Building Regulation documents which cover all aspects of the parts which make up any building, and can relate to doors and fire doors. Table 1.1 above lists the relevant documents for the UK.

	England	Wales	Scotland	Northern Ireland
Fire Safety	B	B	2	E
Sound	E	E	5	G
Ventilation	F	F	3	K
Thermal	L	L	6	F
Accessibility	M	M	3	R
Safety	K	K	4	V
Security	Q			

1.1 – UK Building Regulation documents

Please note that for the purposes of this document, we are going to follow the English building regulations. These regulations are or the most part are the same as for the other regions, but there may be some differences. If in any doubt please refer directly to the regulation documents which apply to the building in question.

Approved Document B

The building regulations will dictate some minimum requirements for where fire doors are required as detailed below:

Dwelling houses (PART B – VOLUME 1)

Fire doors are required:

- In a cavity barrier/wall (Where applicable)
- Above two levels, every door leading to the stairwell (at all levels)
- Where the door leads to a habitable room (i.e. not a bathroom or w/c)
- When a property has a loft conversion
- Between house and integral garage
- Between the business and residential elements in a mixed-use building

Note: This list is not exhaustive and other locations may require fire doors depending on the layout, use and fire plan of the individual dwelling.

Non-domestic buildings (PART B – VOLUME 2)

Fire doors are required in many different non-domestic buildings such as:

- Schools
- Hospitals
- Flats
- Houses of multiple occupancy (HMOs)
- Nursing homes
- Hotels
- Public buildings
- Offices and warehouses
- Entertainment venues, factories and more.

Certification

1. A global assessment document which gives a range of options which can be covered by that document, so for instance it will cover a range of maximum sizes depending on the intumescent strips used, or it will give the maximum size allowed of glass.
2. A project specific assessment which will cover specific doors used on a project in an one off assessment, this will usually be used if there are one or more details which are not covered under a global assessment but can be covered by another test or document.

covered by. The actual certification document will also be issued by the door manufacturer to their client at the end of the project and this will form part of the O&M manual handed over to the buildings owners which should be kept for future reference. This constitutes part of Regulation 38 in England and Wales which ensures that all relevant information on the doors is handed over to a “responsible person”.





Responsibility

It is the responsibility of the specifier and end user to ensure that the correct product is requested for each door which is required to achieve a set level of fire performance, and that the surrounding structure also conforms to the correct performance requirements.

It is the responsibility of the door manufacturer to ensure that the door and frame if applicable they have supplied is correctly covered by the relevant certification and no detail falls outside of same.

It is the responsibility of the ironmongery supplier if different to the door supplier to ensure that all items of ironmongery are correctly certified to the required fire performance.

It is the responsibility of the installers to ensure that the product they have been supplied with is installed correctly according to their own certification and to the relevant standards which prevail.

It is the responsibility of the responsible person to ensure that post installation the doorset is properly maintained and that regular inspections are carried out by a properly qualified person at regular intervals of around 6 months.

2. Delivery and receipting of doors

In order to protect a fire door's certification it is important that the door is delivered, handled and stored appropriately.

Delivery considerations and conditions

- No product should be delivered into the building if the site is not clean and dry and fully enclosed to protect from the elements. All possible work by wet trades should also be completed.
- Fire doors are heavy, always ensure that there is sufficient labour to handle doors and components.
- Ensure that employees are trained in manual handling heavy objects.
- Door assemblies or doorsets must be lifted evenly and securely to avoid any bending or damage of components or frames.
- Protective wrapping should be kept in place as long as possible.

Appropriate storage space

Where doors and frames are to be stored on site for a period of time before they are installed, they must be stored in conditions which will not create issues with the supplied items.

- Doors / doorsets must be stored under clean dry and well ventilated conditions.
- Generally wood based products, should be stored internally in locations that avoid exposure to direct sunlight.
- Fabric dust covers should be used to minimise the risk of damage due to a build up of grit that could scratch surfaces during subsequent handling. The use of plastic sheeting is not recommended for this purpose as this can give rise to 'sweating'.
- Timber is naturally hygroscopic and will absorb and lose moisture according to local environmental conditions. Storage in areas likely to collect moisture should be avoided with storage in areas that provide for a gentle air flow across the stored products being recommended.
- The ambient moisture content must be within the acceptable range, see further details in the Graph 4.1 (page 15).

Delivery

Deliveries should be programmed to suit the site progress with internal joinery products, including 2nd. fix doorsets, planned for installation as late as possible.

Many doorsets are designed to satisfy aesthetic in addition to performance requirements and may include the use of expensive materials, it is strongly recommended that they should be considered and treated as items of furniture.

Goods will be delivered at a pre arranged time and date as agreed between the Shadbolt dispatch team and the site contacts. Deliveries will usually be made on a curtain sided HGV with mechanical offloading facilities being made available on site, but special vehicles could be used if they have been previously agreed and costed for.

Receipting

All goods should be offloaded from the vehicle carefully to avoid any impact or scraping damage. All delivered goods will be properly protected to minimise the chance for damage, but poor or clumsy manual handling will still cause damage which depending on the finish can be very difficult and expensive to make good. It is also important that the protection supplied with the doors and frames is kept in place for as long as possible, only being removed immediately prior to installation.

Fire doors can be very heavy, especially when using specialised cores or large sized doors so it is important that as well as the mechanical offloading facility that there is a sufficiently large team of operatives available to safely handle the door, frame and any other associated components. It is also vital that the operatives are correctly trained in the manual handling of heavy and large objects. Once the product is offloaded it should be immediately moved to the designated storage area to minimise the risk of damage caused either by the product waiting around in an unsafe environment or during transit.

Table 2.1 below provides information on the weight of the doors to allow calculations to be made on site in regard to the handling of the doors.

Shadbolt brand name	Nominal Thickness	Nominal Weight
Shadcore	44mm	28kg/m ²
Shadcore	54mm	35kg/m ²
Shadmaster	44mm	30kg/m ²
Shadmaster	54mm	36kg/m ²
Shadmaster High Acoustic	59mm	40kg/m ²
Shadbolt FD90	64mm	40.3kg/m ²
Shadbolt FD120	60mm	48kg/m ²

2.1 - Shadbolt door weights



3. Identifying the product

Packaging Label Information

All products (doors / panels etc.) supplied by Shadbolt are suitably packaged with the packing fitted with an identification label showing the name of the manufacturer and the details of manufacture. This identification label includes bar code technology allowing for full traceability. Additionally, the labels show the Customers reference as agreed for the purpose of contract together with the intended site location reference for the product.

NOTE:

It is important that products are correctly located as intended at the time of manufacture and the correct door is fitted into the correct opening. A failure to locate products correctly can lead to 'knock-on' effects that may result in costly consequences.

Label Title	Description
Works No.:	Shadbolt's detailed job number.
Op:	Identity of Shadbolt's final inspector/packer.
Pre-Mach:	Shadbolt's CNC machining code.
Door No.:	Customer's door identity/reference.
Customer :	Customer name.
C/ref :	Customer's order reference.
W/ref :	Shadbolt's product type/batch reference.
BAR ID :	Shadbolt's bar code reference.
Master No.:	Shadbolt's master job number.
Item No.:	Shadbolt's product item reference.
Handing :	Indicates the handing of the door leaf
Fire I.D. :	Shadbolt's fire code identity.
Weight:	Calculated door weight based upon product average weight data.

3.1 – Shadbolt packaging label information



Door Label Information

Each door leaf and panel manufactured by Shadbolts is unique and is purpose made to suit a particular location in a particular building. Each door leaf and panel is labelled (in addition to packing labels) to ensure that the product can be correctly located in the works. Unless (unusually) the particular design requires alternative treatment, the product labels are always applied to the top of the door leaf or panel.

The door / panel applied label must not be removed during installation. The label information contains unique data that may be referred to by the owner of the building at any time following installation for the purpose of verifying details or ordering replacements

Label Title	Description
W/O:	Shadbolt's dedicated - project specific - factory job number.
ITEM:	Shadbolt's product item reference.
ID:	Shadbolt's bar code reference.
REF:	Customer's door identity / project location reference.
CUS:	Buyers name.
SIZE:	Height, Width and Thickness dimensions of door leaf (or panel).
HND:	Indicates the handing of the door leaf
APER:	Identifies if door / panel has an aperture by use of 'YES' or 'NO'.
POS:	Identifies location of label - usually the top of the door or panel.
FACE:	Arrows point to the face side (hinge knuckle or pull side) of door.
OP:	Identity of Shadbolt's final inspector / packer.
WT:	Calculated door weight based upon product average weight data.

3.2 - Shadbolt door label information



3. Identifying the product

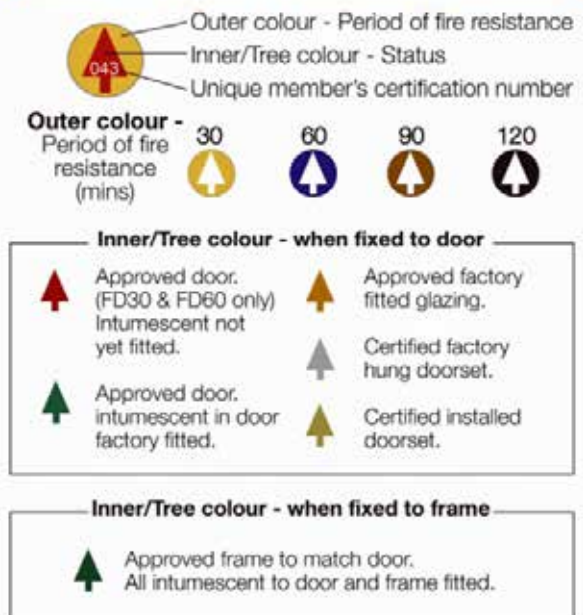
Fire Doors

BM TRADA 'Q' Mark Doors

In addition to identification labels, all fire doors supplied by Shadbolt under the BM TRADA 'Q' Mark scheme are plugged in accordance with the requirements of this internationally recognised third party certification scheme, according to the design fire performance as illustrated opposite.



Timber Fire Door Certification Scheme



NOTE: The handling and use of fire doors should be carried out in accordance with guidance advised by reference to BS 8214:2026.



Fire door identification

As well as the plugs there will also be a label showing who's certification is covering the door and what fire rating is being achieved. These labels will be applied to the hanging edge of the door so that it is not visible during normal operation but can be seen without having to remove the door. Some examples of these are as below showing two different certification bodies.





4. Site storage of doors

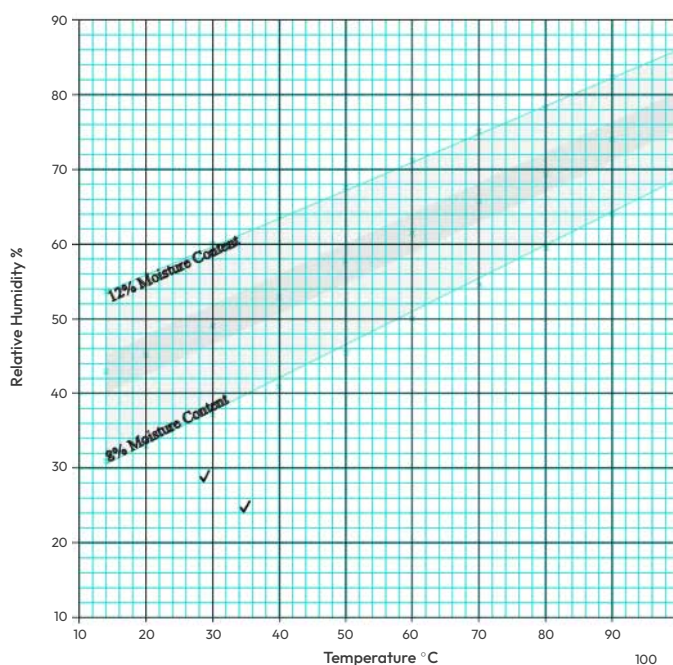
4. Site storage of doors

Storage considerations

- Doors should be stored flat on a level and dry surface, and kept clear of the floor on at least three level and robust bearers.
- Protect the door from dirt and damage but without restricting air circulation.
- Doors should be stacked so that they are not exposed to daylight, as ultra violet light can cause fading or discoloration.
- Store the doors in the sequence they will be fitted to avoid double handling.
- Avoid dragging doors across each other in the stack.
- Doorsets with projecting sills must have spacers between them in the stack to avoid damage.
- Pre-finished doors should retain their protective packaging until the latest possible time; ideally until after internal decorations have been completed.
- If it is necessary to separate the doors from doorsets, each door and frame should be given an identification mark so that the correct door is returned to the correct frame

Off Loading

- Generally doors / doorsets and other products are transported by Shadbolt to a delivery address (usually the site) agreed for the purpose of contract.
- Unless otherwise agreed for a particular contract, panel type products including door leaves are delivered palletted suitable for off loading by fork lift.
- Unless otherwise agreed for a particular contract, access to the delivery area should be by way of a made up road suitable for receiving deliveries transported by use of heavy goods vehicles.
- Unless otherwise agreed for a particular contract, it is the responsibility of the buyer to ensure that sufficient labour and / or lifting equipment is available at the delivery address for the off loading and storage of the goods and the subsequent movement of goods from storage to the required site location.
- For guidance with regard to door weights, please see **Table 2.1** (page 9).



Moisture

When storing any timber items on site it is vital that the ambient moisture is controlled and kept within an acceptable level for timber items. This is important for any timber items but more so for doors and frames where there can be large flat surfaces and long frame jambs which are susceptible to movement which will be very hard to remove on site without having to replace the product.

Timber doors and frames are generally manufactured with a moisture content of 10~12% for internal use and 12~14% for external use. The applicable standard on this subject is BS EN 942 Timber in joinery. General classification of timber quality. Do not bring joinery to site until moisture readings are between 40~60% RH and until any forced-drying procedure or the commissioning of the air conditioning or any other temperature control systems have been completed. See details above (**Graph 4.1**).

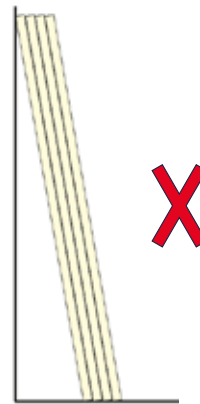
NOTES:

- The moisture content of wood will equalise to the levels indicated in this graph according to local environmental conditions.
- Optimum conditions for joinery intended for internal use will result in maintenance of an 8 ~ 12% moisture content.
- This graph should be referred to for the purpose of storing wood based products and subsequently for installed finished goods.
- Wood is naturally hygroscopic and will absorb or lose moisture according to local environmental conditions. Variations in moisture content will result in growth or shrinkage, (particularly across the grain of wood). This graph provides guidance with regard to the environmental conditions that should prevail during storage (and subsequent use) to ensure that wood products remain stable.
- Moisture contents should be checked and recorded at the time of each handover.
- Rapid changes in environmental conditions, (even within indicated tolerances), can give rise to more dramatic effects.

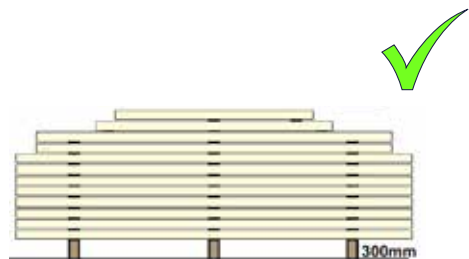
4. Site storage of doors (cont'd)

Stacking

- Do not store door leaves standing upright or leaning as this may cause bowing (**Illustration 4.2**).
- Stack horizontally on level supports consisting of a minimum of three bearers that extend across the full width of the bottom door leaf (**Illustration 4.3**).
- Provide support within 300mm from each end. Use of additional bearers is recommended for door leaf heights in excess of 2150 mm.
- Cover the supports with cardboard or similar to prevent marking.
- Stack with the largest door leaf at the bottom with size reducing up the stack. Plain flush doors can be stacked to a maximum of around 20 door leaves.
- When door leaves have projections such as glazing beads or pre fitted hardware, provide level intermediate battens between door leaves to allow clearance.



4.2 - Incorrect storage of door leaves



4.3 - Correct storage of door leaves



Door Assemblies

The same principles apply when storing door assemblies. Stack with the door leaf lying in the closed position on the door frame door stop. Separate each assembly with level battens to ensure that projections such as hinge knuckles, beading or other door projections do not cause damage.

When stacking it is preferable to stack in the order they will be used, so have the first door to be installed at the top of the pile and the last one to be fitted at the bottom. This is not always possible but if the opportunity is there then it will reduce double handling of the doors where you have to sort through a stack of doors to find the correct one which will increase the risk of damage.

Covering

Exposure to natural light and the UV light contained in it will fade timber, different timbers will change colour in different ways. Cover stacks with opaque sheeting to prevent fading and keep doors clean. This is extremely important with veneered doors.

NOTE:

The use of non plastic, porous covering is recommended for this purpose. The use of non porous plastic sheeting can give rise to damage to finishes resulting from 'sweating'.

Priming and sealing

The applicable British Standard for priming and sealing is BS 6150 - Code of practice for painting buildings. Prime or seal all items supplied 'in the white' immediately following delivery including top and bottom edges of the door leaf, apertures and preparations for hardware and all sides of the frame. Apply further coats within a reasonable time and before door leaves are hung or assemblies are installed. All doors and frames supplied factory primed should have at least one of the finishing coats applied as soon as possible.

CARE: When applying primer or paint finishes all labels or plugs which identify the door as a fire rated doorset must be protected and NOT covered up. Covering the labels will effect the doors fire certification as it cannot be identified.

NOTE:

For doorsets intended for external use, all parts of the doorset that will become inaccessible after installation should be treated with the intended finishing system in advance of installation. The final protective finishes should be applied immediately following installation.

Handling

Avoid bruising and damage caused by heavy contact with the ground. Wear clean gloves to avoid leaving finger marks and possible injury from splinters.

5. Installation

Pre-work checks

Before starting any installation works there are some vital elements which must be checked thoroughly before any works commence.

This is a critical step as finding and resolving any issues prior to installation is far quicker, easier and ultimately cheaper than if they are only found after the door has been installed.

First and foremost all site works must be done in a controlled and safe way, a thorough risk assessment and method statement must be in place with the relevant authorities prior to any works starting. Throughout the works, the safety of the workforce must be monitored to ensure the RAMS and all other relevant safety precautions are followed.

Installation checklist

It is strongly recommended that the installer of the door is a member of a recognised 3rd. party certification scheme to ensure that best practice is used.

In respect of fire doors, inspection authorities will require evidence that the installation process complies with the tested specification and this will include:

- ☐ Intumescent systems.
- ☐ Compliance of the glazing with the tested detail supplied by the door manufacturer.
- ☐ The size of all operating gaps.
- ☐ Intumescent protection around hardware and the quality of the preparation.
- ☐ The quality of the supporting construction and the prepared opening
- ☐ The fixing of the fire door.
- ☐ Fire and smoke stopping methods used in fitting-in gaps and voids.



Structural opening

The wall type into which the door is being installed should be of a suitable construction to achieve the required fire rating to compliment the door. The structural opening must also be to the correct size as per the agreed schedule and square the plumb, and this should be checked prior to unwrapping the frame. The opening should also match the relevant drawings and be clean with suitable buildup to allow proper fixing of the frame.

Gaps and tolerances

When checking the structural opening size check the gaps which will be left and ensure that they can be properly overcome and filled to suit the relevant certification which is covering the installation. If the gaps will be too large then seek advice from the main contractor and/or the door manufacturer because either the installation method will have to change or the Structural opening will have to be reduced.

Further checks

Check all components including door, frame, seals and ironmongery are correct as per the relevant schedule and drawing, that they are to the correct fire rating as required and that they are free from any damage or defect. Also check items are CE marked as required.

Programming and timeline

Install doorsets only when site conditions are suitable. Operating gaps around door leaves will vary between 2-4mm. Any movement of the structure after doors are installed will definitely affect these margins and cause malfunction. Movement results from:

- Shrinkage due to drying out.
- Growth due to increased moisture.
- Deflection of structural members.

Defer installation if conditions are unsuitable.

WARNING:

Planning for the commissioning of heating and air conditioning systems must be considered at the time of installation. Where heating or air conditioning is commissioned after installation, this should be done gradually over as long a period as possible.

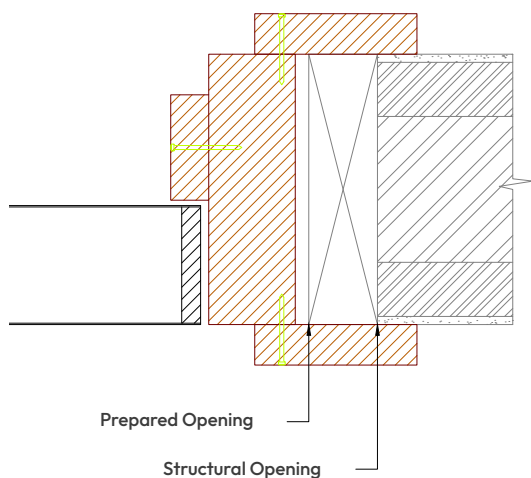
Timber is naturally hygroscopic and will swell or shrink according to local environmental conditions. The rapid loss or gain of moisture following the commissioning of heating and air conditioning systems can induce moisture content related defects.

5. Installation

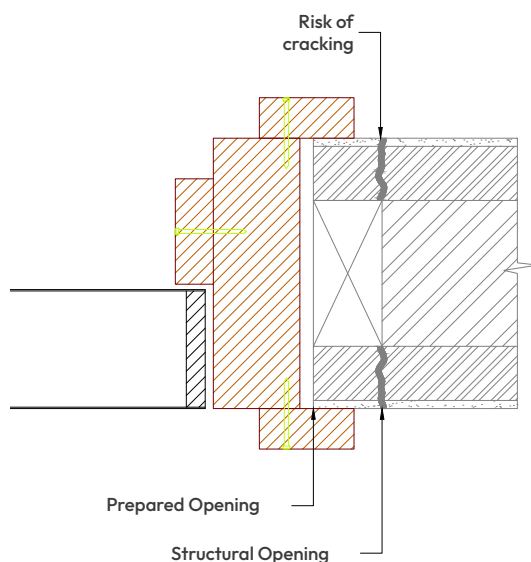
Prepared openings

Timber grounds may be used to adjust opening dimensions to receive fire rated doorsets up to FD60 (BS476 Pt.22). The use of timber grounds is recommended to provide for 'prepared openings' to receive doorsets. The preferred method will depend upon the frame design and in particular the extent of architrave cover over the surrounding structure. The following details illustrate some options:

Timber Grounds - Masonry Walls (Option 1)



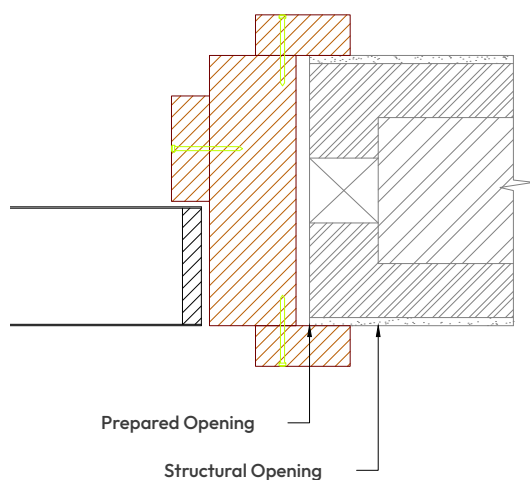
Timber Grounds - Masonry Walls (Option 2 - Not recommended)



Timber grounds may be applied to the full thickness of the finished wall. However, architrave dimensions may need to be increased to provide for cover over the surrounding structure.

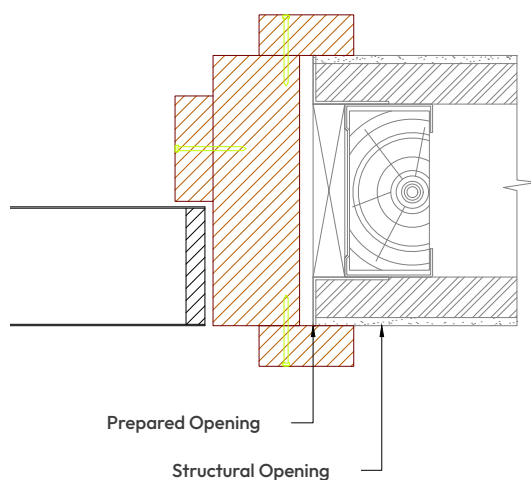
If render is extended over the grounds the ground will absorb moisture (and swell). Shrinkage occurs as the ground loses moisture with a consequent risk of cracking of wall finishes.

Timber Grounds - Masonry Walls (Option 3)



Use of a smaller ground will permit the render to be returned to the structural reveal with minimal risk of cracking of facing materials. This detail will also permit the use of a 'project standard' size architrave.

Timber Grounds - Stud Partitions (Option 4)



Stud partitions can generally be constructed to more exacting tolerances with a reduced need for the use of grounds. Where necessary timber grounds can be used to form prepared openings with stud partitions. The use of dry facings (e.g. plaster boards) results in a minimal risk of cracking of wall finishes.

5. Installation Gaps

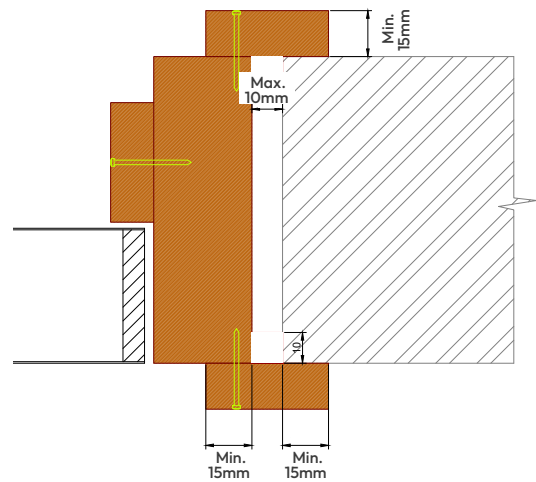
For 2nd. fixing of doorsets into prepared openings it is essential that there is an installation gap between the frame and the surrounding structure.

Shadbolt work to a nominal 5mm installation gap at each jamb and at the head.

To provide for ease of installation the prepared openings must be plumb and square and prepared to exacting tolerances.

The following details illustrate approved methods for the treatment of installation gaps for fire rated doorsets up to FD60 (BS476 Pt.22).

BS8214:2026 Compliant



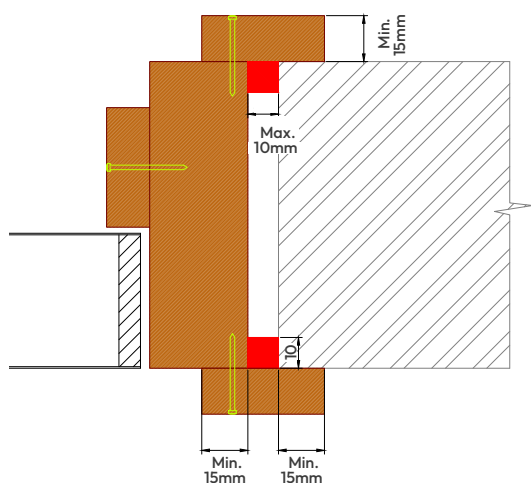
For timber stud partitions and masonry walls built without fair face, fire rated doorsets may be fitted to prepared openings without the use of additional intumescent materials where the gap between the frame and the surrounding structure is less than 10mm and where architrave, that is not less than 15mm thickness, overlaps the frame and the surrounding structure by not less than 15mm.

- The installation gap must not exceed 10mm. and/or
- The architrave must be minimum 15mm thickness. and/or
- The architrave must provide for a minimum 15mm cover over the surrounding structure. and/or
- The architrave must provide for a minimum 15mm cover over the face of the frame.

NOTE:

Notwithstanding the provisions of BS8214:2026 the use of intumescent sealing between the frame and the surrounding structure is strongly recommended for all fire door applications.

Installation Gaps up to 10mm

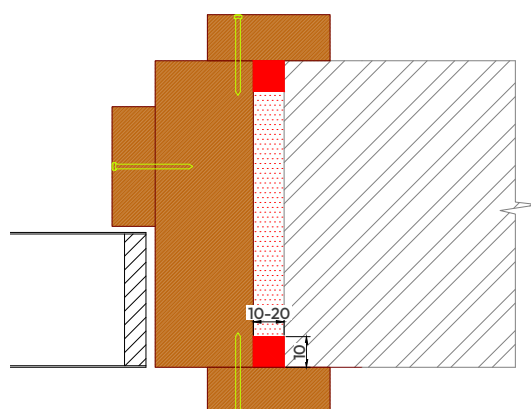


For installation gaps up to 10mm where other details do not satisfy the **BS8214:2026 Compliant** installation (page 22), the gaps must be sealed on both sides with a 10mm depth of acrylic intumescent mastic. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.

NOTE:

Acrylic intumescent mastics used for this purpose must have been satisfactorily tested for this application to the requirements of BS476 Pt.22 or BS EN 1634-1.

Installation Gaps between 10-20mm



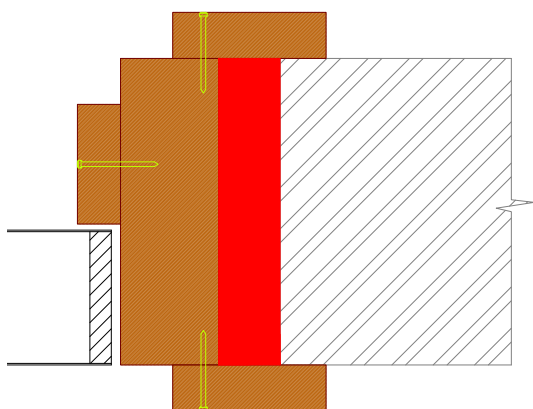
For installation gaps 10 ~ 20mm, the gap must be tightly packed with mineral fibre capped on both sides with a 10mm depth of acrylic intumescent mastic. Architraves are optional.

NOTE:

Acrylic intumescent mastics used for this purpose must have been satisfactorily tested for this application to the requirements of BS476 Pt.22 or BS EN 1634-1.

5. Installation Gaps (cont'd)

Installation Gaps 15-20mm



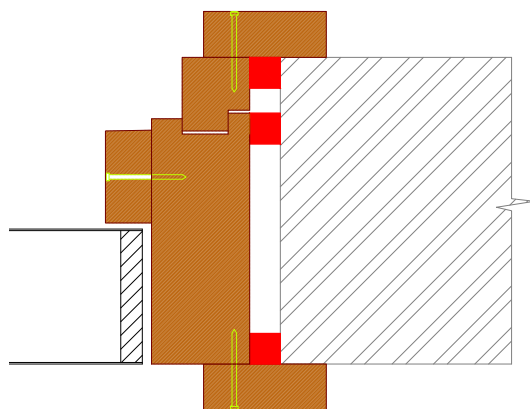
Installation gaps in excess of 20mm are not approved for fire door installations and the opening must be adjusted by the use of timber grounds or in other ways to create prepared openings.

For installation gaps up to 20mm, the gaps should be filled with proprietary fire stopping product (e.g. expanding PU foam or preformed compressible intumescent foam). Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.

NOTE:

Expanding PU foam or preformed compressible intumescent foam used for this purpose must have been satisfactorily tested for this application to the requirements of BS476 Pt.22 or BS EN 1634-1.

Installation - Frame Designs with Extension Linings

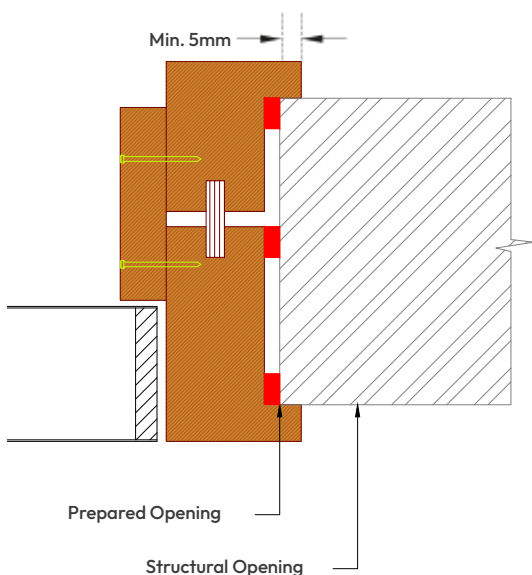


For frame designs using extension linings, the extension lining is essentially a non load bearing trim item and the stability of the installation relies upon the secure fixing of the primary frame section.

Installation fixings for installing the primary frame section must comply with approved details described in **5. Installation - Fixings** (page 26). Sealing between the frame and the surrounding structure must comply with the recommendations defined in previous illustrations in **5. Installation - Gaps** (page 22-24). An additional intumescent bead being used to the back of the primary frame section as illustrated above.

An alternative approved method for sealing between the frame and the surrounding structure for use with frame designs using extension linings is illustrated in **Installation - Split Frame Designs** (page 25).

Installation - Split Frame Designs



For split frame designs the section that supports the door leaf is the primary section with the other half of the split frame being a non load bearing trim item.

Installation fixings for installing the primary frame section must comply with approved details described in **5. Installation - Fixings** (page 26).

Structures to receive doorsets using split frame designs without the use of architrave must be very carefully prepared. It is essential that the openings to receive the doorsets are plumb and square and constructed to exacting tolerances.

The nib (moulded architrave) part of the frame must overlap the surrounding structure at the head and jambs by a minimum of 5mm and installation gaps of any size must be sealed with intumescent mastic as illustrated above.

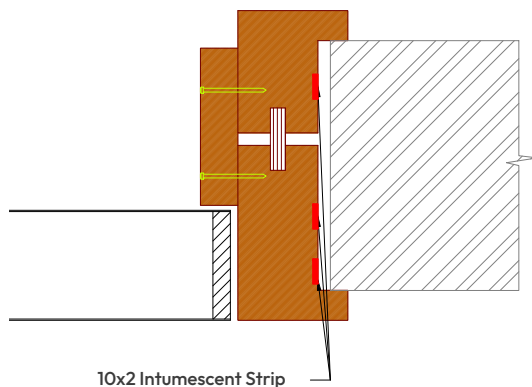
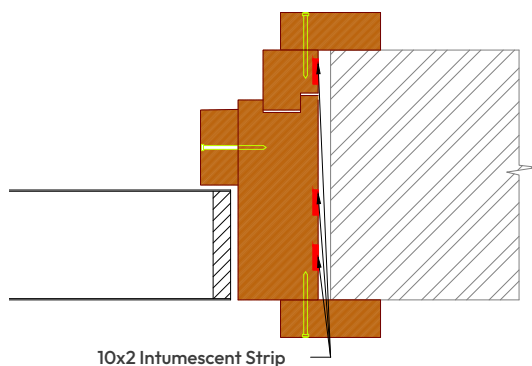
Alternative approved method for intumescent sealing between the frame and the surrounding structure for use with split frame designs is illustrated by reference to **Alternative Frame Intumescent Sealing** (opposite).

Alternative Frame Intumescent Sealing

Where agreed for the purpose of contract, the back of frame components can be grooved to receive low pressure intumescent seals that can be fitted to the frames before installation to provide for an alternative to the use of intumescent mastics to suit installation gaps up to 10mm.

This option is a preferred method for use with 2nd. Fix frame designs, particularly where used in conjunction with high quality polished hardwoods. An additional benefit resulting from this method of sealing is that the frame components are more resistant to distortion if subjected to environmental conditions that result in variations to moisture content. Intumescent material suitable for this application:

- 2mm Interdens (Dufalite Developments Ltd)
- 2mm MAP paper (Lorient Polyproducts Ltd)
- 2mm Therm-A-Strip (Intumescent Seals Ltd)
- 2mm Pyrostrip 300 (Mann McGowan Fabrications Ltd)



5. Installation

Fixings

Installation Fixings

Fasteners used for the installation of doorsets must be of a size and type suitable for securing into the medium into which the doorset is to be installed.

Fixings should be staggered and must penetrate the structure to a minimum depth of 40mm.

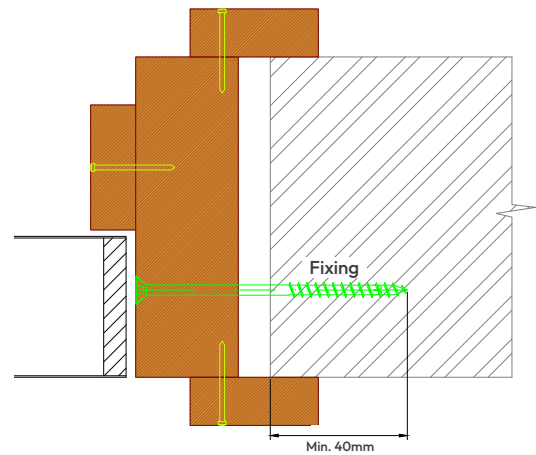
NOTE:

Where grounds are used, the fixings must pass through the grounds to a minimum depth of 40mm into the surrounding structure.

When installing doorsets into masonry walls it is recommended that fixings should be located at least 25mm from the face of the base block work or brick work wall.

Steel wood screws may be used with timber stud partitions and for use with steel stud partitions that incorporate a timber infill.

When fixing to propriety metal stud partitions without timber infill the fixings must be of the size and type approved by reference to the partition manufacturers fire test / assessment data.



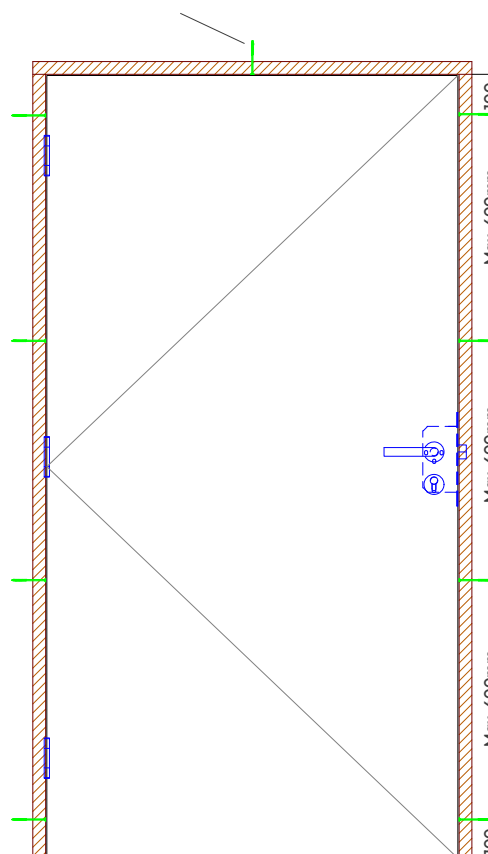
- Steel fixings to penetrate structure to a minimum depth of 40mm.
- For masonry walls it is recommended that fixings are located a minimum of 25mm (dim. x) from the face of the base block / brick structure.
- Fixings may be covered by use of the door stop, pellets or by the intumescent seals.
- Fixings should be staggered.

Positioning of Installation Fixings

The positioning of installation fixings in height should be planned to avoid conflicts with hardware, sealing systems and other building elements.

- A top fixing must be located within 100mm from the underside of the frame head.
- A bottom fixing must be located 100mm from the bottom of the jamb.
- Intermediate fixings must be located at centres of not more than 600mm.
- The minimum number of fixings in height must be:
 - Doorset height up to 2000mm = 4No.
 - Doorset height 2000 ~ 2500mm = 5No.
 - Add 1No. fixing for each further 500mm increase in doorset height.
- For storey height doorsets a top fixing must be provided within 100mm from the underside of the frame head with a further top fixing positioned 100mm from the underside of the transom rail (or bottom edge of the over panel if a flush overpanel design is used).
- For doorset widths in excess of 1100mm the use of an additional fixing centre width of the doorset at the head position is recommended.
- MDF frames are more flexible than timber frames. To reduce the risk of frame distortion during fixing it is strongly recommended that the dimension for fixing centres between intermediate fixings is reduced from 600mm to a maximum of 500mm.

Additional fixing to the frame head is recommended for doorset widths over 1100mm



5. Installation Sequence

The installation of a fire door will usually follow a certain flow with some variation depending on many factors, for instance the design, the finish etc. The below is an example of a general process flow for installing a fire rated door and frame.

1. Carry out pre installation checks.
2. Unwrap the frame.
3. If not factory machined, machine for any ironmongery needed as specified
4. Locate the frame in the structural opening, using suitable packers to pack out the gap between the outside of the frame and the inside of the structural opening and make sure that the frame is square, straight and plumb.
5. Apply any intumescent mastic or material between the outside of the frame and the structural opening, ensuring that there are no gaps and that what has been used is suitable and follows the relevant certification.
6. Secure the frame in position using suitable fixings as specified in the relevant certification documents.



7. Once the frame has been fixed carry out checks to make sure everything is correct including but not limited to the below:
 - Measure the frame to ensure everything is plumb, straight and square.
 - Try and move the frame to ensure it is securely fixed and there is no movement
 - Check the outside of the frame and ensure there are no gaps in the intumescent and the packing and that none has been squeezed out when fixing the frame.
8. If required complete the finishing of the frame and the surrounding wall up to the outside of the frame.
9. Fit any extra items into the frame, for instance seals required for fire, smoke and acoustic performance as specified. Or ironmongery for instance guide rails for concealed closers.
10. Unwrap the door leaf.
11. If not factory machined, machine for any ironmongery needed as specified.
12. Fix hinges to the door leaf, ensuring that the correct hinges are being used and the correct fixings, and make sure if required intumescent pads are fitting under the hinge.
13. Fit any other ironmongery required to the door leaf, ensuring that all fixing and intumescent requirements specified by the relevant certification are followed.
14. Fit the door leaf into the frame and secure the hinges into the frame to allow the door leaf to hang.
15. Connect any ironmongery, for instance concealed closers or access control.
16. Check all gaps around the outside of the door leaf and ensure that they are correct as per the specification and drawing.
17. Test the action of the door, ensuring that it opens and swings smoothly and then closes smoothly and easily.
18. If the door is in a high traffic area we would suggest applying protection to the door and frame after it is installed until the door and the relevant area is handed over.

5. Installation

Adjusting door leaf

The extent to which door leaves need to be adjusted will be influenced by a number of factors

Adjustment Factors

- Provisions made at the time of manufacture.
- Environmental conditions affecting moisture contents during transport and storage.
- Quality of installation.
- Age of the building the doors are being installed in

When installed, the operating gaps between the door and the frame and at the meeting stiles of pairs should comply with BS4787 Pt.1 when measured from the opening face of the door leaf and should ideally be 3mm but could vary between 1.5–4mm.

4mm is the maximum permissible and any gaps exceeding that either between the door leaf and the frame or between 2no door leaves in the case of pairs should be rectified immediately.



It is recommended that the moisture content of the door leaf is checked before attempting to adjust door leaves. This is because timber can grow or shrink across the grain, on average by 1% for each 4% variation in moisture content. Adjusting door leaves that have absorbed excessive moisture during transport, storage or during installation while wet trades are in attendance, may give rise to subsequent operating gap issues following the commissioning of the building heating and ventilation systems and the door returning to its original size.

The site adjustment of door leaves may be required to suit individual location requirements. The need for adjustments will be reduced if the doorsets are installed plumb and square and where the door leaf (rather than the surrounding structure) is used as the installation template.

The application of a 'leading edge' may be required for some locations. Doors may be reduced on site by planing lippings. For fire rated doorsets, the extent of the reduction should be the minimum necessary to provide for the correct operation of the door but must not exceed 20% of the original lip thickness.

Where intumescent seals are fitted to the door leaf, these must be removed before adjusting the door and refitted (with additional grooving) after the adjustments have been completed.

For adjustments in widths lippings must be reduced equally on both vertical edges of the door.

For reductions in height, fire door adjustments are limited to the bottom edge adjustments only and must be small as to not effect the ironmongery positions.

If larger alterations are required than shaving a couple of millimeters off then these must be checked with the door supplier to ensure that what is required will not effect the fire certification in any way. If it does then a new door to the new size will be required.

5. Installation

Performance doors

To achieve design performances, additional care is required when installing performance doorsets. i.e. doorsets required to provide for fire / smoke sealing / acoustic etc. performances.

It is recommended that additional installation times should be anticipated for these doorsets to allow for the required packing of installation gaps and the setting and adjustment of sealing systems. The following is advised for guidance only:

- General Purpose doorsets installation time = x1
- Fire rated doorsets = General Purpose installation time x2.
- Smoke sealed doorsets = General Purpose installation time x3.
- Fire and Acoustic Doorsets = General Purpose installation time x5.



The gap between the door and the frame must be suitable to provide for effective smoke / acoustic sealing at the seal position, particularly in respect of frame reveal fitted seals.

Generally separate seals that fit near to the frame doorstop will provide for reduced influence on the operation of the door.

It is recommended that 'operating gaps' and 'seal gaps' are considered as separate issues and that seal designs should provide for a means of adjustment to suit the particular application.

The following guidance provides for a method for ensuring that acoustic doorsets are correctly installed with sealing systems correctly fitted:

- For correctly fitted acoustic doorsets it should be possible for an able bodied person to fully close the door using one finger with the force applied to the opening face about 50mm from the closing stile.
- The resistance of the sealing should be felt during the last 9-10mm of closing.
- When opening the door, there should be a 'bath plug' effect as air trapped between the seals expands into the sealed space creating a negative pressure zone.
- The first 9-10 mm of opening should be achieved using a gradual (but not excessive) force.
- An attempt to the open the door quickly should be met with greater resistance if the seals are fitted correctly.

6. Installation of door hardware

General

For use with fire rated doorsets, the following recommendations apply:

- Reference should be made to BS8214:2026 – Code of Practice for Fire Door Assemblies with non metallic leaves.
- Reference should be made to the ‘Hardware for Timber Fire and Escape Doors’ Code of Practice published jointly by the DHF (Door & Hardware Federation) and the GAI (Guild of Architectural Ironmongery).

It is strongly recommended that hardware should be fitted to fire doors by qualified tradesmen who have received training under a Fire Door Installers programme and who are certified under a recognised 3rd. party certification scheme for this purpose.

Use of items of hardware that are supported by 3rd. party certification schemes and / or approved for use with wood fire doors is required. For ‘product assured’ items, the fixing instructions provided by the hardware manufacturer should be strictly adhered to and these instructions take precedence over BS8214:2026 and Code of Practice general recommendations in the event of any conflict.

Hardware for Fire Door Applications

Solid wood and wood based doors rely on the core material to erode at a predictable rate for their fire performance. Intumescent seals fill gaps around the door(s) that may occur as a result of shrinkage or distortion under fire conditions. The removal of core and intumescent material to accommodate hardware creates weaknesses that can be exploited under attack by fire. Large areas of metal, when used with a wood door can induce excessive distortion and premature failure. It is recommended that hardware is selected with care in consideration of these risks.

It is not unusual for hardware to be specified prior to the specification of the doors and without knowledge, at the time of preparation of hardware schedules, of the fire performances that need to be satisfied. It is a Designer’s responsibility to ensure that the doorset designs meet the requirements of national and local regulations for the purpose of fire certification. (See: BS5588 or BS9999).



Insulation

All Shadbolt solid core door products provides for very good insulation characteristics under fire conditions with a potential to provide for an insulation performance equal to the integrity performance. (See BS476 Pt.22).

Metal passing through the door from one face to another creates a path for thermal bridging, (i.e. The transfer of heat from one side of the door to the other), this will reduce the insulation properties of the door and in extreme cases may give rise to ignition on the non fire face of the door. Under BS476 Pt.20 fire test conditions the pressure 'normal' in the furnace occurs at (approx) 1000mm above floor level.

Areas of door above the normal are subjected to increasing positive pressure from the furnace side while areas below the normal are subjected to negative pressure from the furnace side. This results in 'cold' air entering the furnace under the door with a cooling effect on this edge. Hardware items, particularly locks & latches, should be positioned below the 'normal' where possible.

NOTE:

The pressure normal is lowered to 500mm above floor level for testing to BS EN 1634-1.

Interruptions

Where the door / frame seals are interrupted to receive hardware it may be necessary to provide for replacement sealing. The use of pressure intumescent seals (e.g. Palusol P100 or Graphite) may be unsuitable for this purpose due to a risk that pressure seals could compete with door/ frame seals in an unpredictable manner. The replacement intumescent sealing should generally be of the low pressure type. (Usually Phosphate based). Low pressure intumescent is available in sheet form (often pre cut to suit particular items of hardware).

Examples:

- MAP paper - Lorient Polyproducts Ltd.
- Interdens - Dufaylite Developments Ltd.
- Therm-a-Strip - Intumescent Seals Ltd.
- G30 - Sealmaster Ltd.
- Norseal Ltd.

Most intumescent mastics are of the low pressure type and are generally suitable for this application.

NOTE:

It would be an impossible task to test every conceivable item of hardware with every possible door construction. Extensive base test evidence provides for a wide range of approved hardware items / designs for use with Shadbolt door constructions under the 'Q' Mark 3rd. party accreditation scheme.

Where specified hardware is not included within the scope of existing Shadbolt test / assessment data, specifiers should rely upon test / assessment data to be provided 'by others' or seek further 3rd party certification approval to the satisfaction of Building Regulations.

6. Installation of door hardware (cont'd)

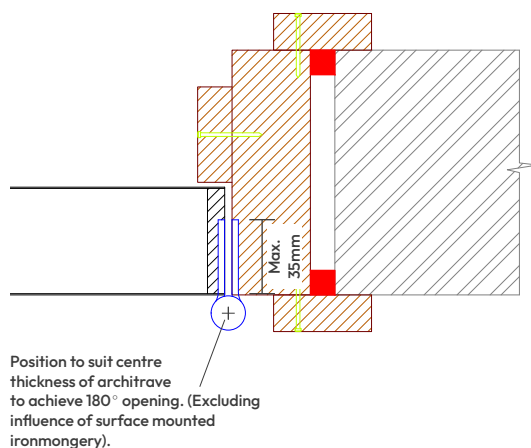
Hinges

Hinges should provide for the appropriate BS EN 1935 : 2002 performance according to the door weight and anticipated usage. Hinges must be either tested or assessed as suitable for use in wood fire doors to the required performance. Generally hinge blades must not extend more than 35mm through the thickness of the door leaf. The hinge knuckle centre should be set as near to the door face as possible to minimise the 'door growth' during operation. A hinge knuckle centre at the centre line of the architrave thickness will allow for 180 degree opening (excluding the influence of other surface mounted hardware). Pilot holes must be drilled to receive hinge fixing screws.

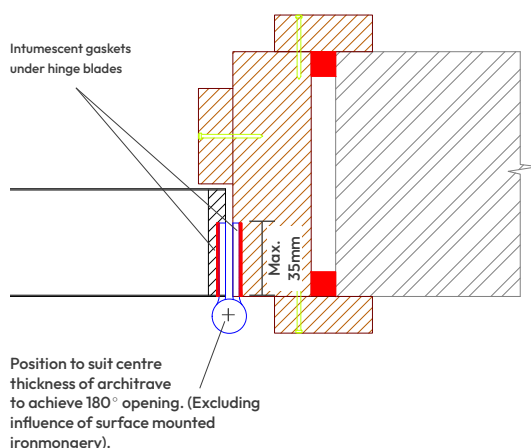
Generally intumescent gaskets are not required under hinge blades for Shadbolt door constructions used for FD30 applications unless the door leaf is exceptionally tall, but are required always for FD60 applications.

NOTE:

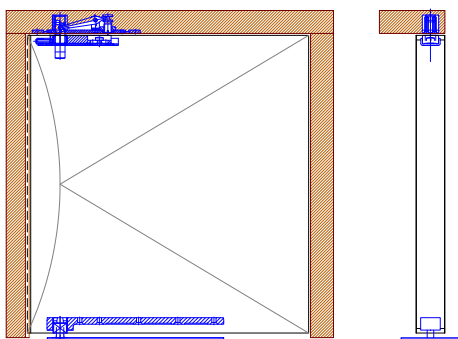
Whereas fire performances have been proven using standard wood screws, the use of Min. 2in. (50mm) No.8 fixing screws 'Twinfast' or fully threaded chipboard screws is recommended when fixing load-bearing items of hardware.



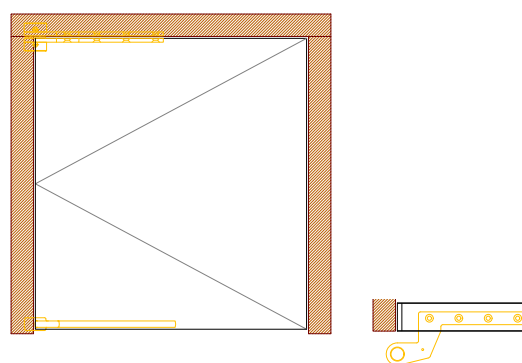
6.1 - Fire Door Hinges (FD30)



6.2 - Fire Door Hinges (FD60)



6.3 - Floor mounted closers - Double Action
(FD30 & FD60)



6.4 - Floor mounted closers - Single Action
(FD30 & FD60)

Pivots

Automatic closing devices must be tested or assessed to the required fire performance when tested to BS 476 Pt.22 or BS EN 1634-1 with wood doors. The top pivots to floor spring assemblies must be protected with intumescent gaskets. Alternatively a dedicated intumescent pack provided by the floor spring supplier may be used. Pilot holes should be drilled to receive screw fixings. Use of Min. 2in. (50mm) No.8 fully threaded 'Twinfast' or coarse threaded chipboard screw fixings are recommended for load bearing hardware items.

NOTE:

Bottom strap fittings can be over recessed to provide for required under door clearances.

NOTE:

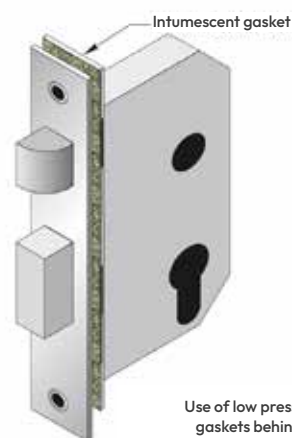
Transom mounted double action closers (e.g. Dorma RTS 85). are not approved for 'Q' Mark applications but may be used in reliance upon further test / assessment data to be provided 'by others'.

WARNING:

When using offset or single action pivots, the pivot centre for these fittings extends a considerable distance from the opening face of the door. This can give rise to operational problems when used with narrow and/or thick doors.

Locks/Latches

Latches and locks must be either tested or assessed as suitable for use in wood fire doors to the required performance. Mortises should be machined to provide for a tight fit with any voids around the lock/latch case filled with intumescent mastic or mineral wool. Reference must be made to the fire test/assessment data related to the particular door construction. If required by reference to either the door or the hardware fire test/assessment data or in the absence of any other guidance, intumescent gaskets must be positioned under forend plates and strike plates.



Use of low pressure intumescent gaskets behind the lock forend and strike plate is recommended.

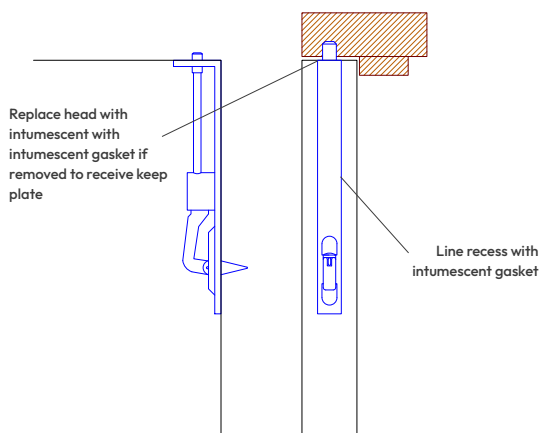
Machine face holes to suit cylinder profile +2mm clearance fill void with intumescent mastic. Apply similar treatment around spindle holes.

6.5 - Locks and latches (FD30 & FD60)

6. Installation of door hardware (cont'd)

Flush bolts

Bolts may be required to secure the secondary leaf of pairs. Generally, there are no restrictions on the use of surface mounted bolts (e.g. Barrel bolts) that do not interfere with the edge sealing of the doors. Flush bolts must be either tested or assessed as suitable for use in wood fire doors to the required performance. Reference must be made to the fire test/assessment data related to the particular door construction. If required by reference to either the door or the hardware fire test/assessment data or in the absence of any other guidance, intumescent gaskets must be used with edge fixed flush bolts and under keep plates.



For both FD30 and FD60 applications the mortice to receive flush bolts should be as tight to the mechanism as is compatible with its operation and the mortice must be lined with an intumescent gasket.

Pull handles

Generally pull handles may be surface fixed to both FD30 & FD60 door provided that they are steel or brass and the length is limited to 1200mm between the fixing points. Bolt through fixing pull handles up to the same length may also be used for fire door applications with no additional intumescent sealing required, provided that the hole through the door to receive the bolt provides for a tight fit.

Kick and push plates

Generally protection plates may be surface fitted to Shadbolt doors where the total area of the plates does not exceed 20% of the door leaf area. This can be increased to 30% as long as the plate is fixed to the door leaf using thermos softening glue only to allow it to fall away in the case of fire.

Door selectors

Generally door selectors may be freely applied for use with wood doors for FD30 and FD60 fire door applications, provided that they are not invasive in the door leaf edges or the door frame. Those that are invasive will require fire resistance test/assessment evidence to support their use. Additional intumescent protection is not required unless fire test/assessment documentation relating to the particular device requires otherwise.



Panic hardware

Generally panic hardware may be used with wood doors for FD30 and FD60 fire door applications, provided that the installation does not require the removal of any core material from the door leaf or the removal of any timber from the door leaf, doorstep or frame reveal. Further, the panic hardware should not, in any way interfere with the self-closing action of the fire doors.

Door viewers

Generally door security viewers may be used with wood doors for FD30 and FD60 applications provided that the viewers are manufactured from brass or steel with viewer bodies of a diameter of 15mm (or less) and provided that the through-hole is bored tight to the case of the viewer with a maximum tolerance of +1mm. Lenses must be glass.

Acoustic, weather and dust perimeter seals

Acoustic, weather and dust seals with a proven flame retardant performance may be fitted to wood based doorsets for FD30 and FD60 applications providing that the fitting of the seals does not interfere with the activation of the doorset intumescent seals or hinder the self closing function of the door leaves.

Automatic closers

Automatic closing devices e.g. Single Action Overhead Closers, must be either tested or assessed as suitable for use with wood fire doors to the required performance. Most surface mounted single action overhead closers will satisfy this requirement, provided that the fittings do not interrupt edge acting door or frame fitted intumescent seals.

Some concealed closer designs have been successfully tested for fire door applications in wood doors and may be specified in reliance upon the closer manufacturer's test / assessment data. However, these do require the removal of a large amount of core material to house the closer and its essential dedicated intumescent pack.

It is recommended that these devices are used with min. 54mm thickness wood doors to minimise the risk of 'telegraphing' of the mortice on the face of the door and a risk of mechanical failures at the mortise position. The exception to this is the use of a concealed closer which has been designed for use in a 44mm thick door which can be used, but the use of this is strictly at the clients risk.

It is further recommended that doors to receive concealed closers are hardwood lipped on the top edge to provide for improved fixing.

6. Installation of door hardware (cont'd)

Threshold seals

Fully mortised automatic threshold drop seals may be fitted to wood based doorsets for FD30 and FD60 applications provided that the particular drop seal design is supported by fire test evidence to BS476 Pt.22 or BS EN 1634-1 that demonstrates an integrity performance that is at least equal to the desired fire performance of the doorset when installed in wood door leaves of comparable thickness. Alternatively, surface mounted automatic drop seals may be used where the fitting of these does not require the removal of any core material. Since the publication of BS 8214:2026, threshold sealing has become an integral part of the overall smoke control performance of a fire door assembly. Where smoke control is required, an appropriate threshold sealing solution should be provided. Automatic drop seals offer an effective means of achieving this while maintaining normal door operation.

Letter boxes

Letter plates (boxes) may be fitted to wood based doorsets for FD30 and FD60 applications provided that the particular letter plate (box) design is supported by fire test evidence to BS476 Pt.22 or BS EN 1634-1 that demonstrates an integrity performance that is at least equal to the desired fire performance of the doorset when installed in wood door leaves of comparable thickness. Generally, margins to the leaf edges must not be less than the margins approved for glazing for the particular door construction.

Generally letter plates (boxes) should be located towards the bottom of the door (i.e. in the low / negative pressure area of the door under test conditions) unless the fire test / assessment data relating to the particular letter plate (box) provides for alternative locations in a wood based door.

Air transfer grilles

Air transfer grilles may be fitted to wood based doorsets for FD30 and FD60 applications provided that the particular grille design is supported by fire test evidence to BS476 Pt.22 or BS EN 1634-1 that demonstrates an integrity performance that is at least equal to the desired fire performance of the doorset when installed in wood door leaves of comparable thickness. Margins for apertures to receive grilles will generally be the same as described for glazing with a preference for grilles to be located towards the bottom of the door (i.e. in the low/negative pressure area of the door under test conditions) unless the fire test/assessment data relating to the particular grille provides for alternative locations in a wood based door. The area of door occupied by the grille will generally be limited by reference to the test/assessment data relating to the particular door construction.

NOTE:

When used with glazed doors, the maximum permitted area for glazing approved for the particular fire performance may be reduced by an amount that is at least equal to the area of the door that is occupied by the grille.



Cable ways

Cable ways to provide a route for the connection of electric locks / strikes with command units are permitted for use with some wood based doors subject to the following:

- The particular locking devices must be supported by test evidence to the required performance in a wood based door construction.
- The cable-way may be concealed in one of the following ways:
 - An 8mm dia. (max.) diameter hole drilled centrally in the door thickness and horizontally across the width of the door.
 - An 8x8mm groove positioned centrally in the door thickness to be applied to the door core, before the application of lippings. The groove to be positioned below (and not exceeding mid door leaf height) at the hanging edge passing around the bottom of the leaf and returning to the lock / strike position at the closing stile of the door with the cable groove fitted with intumescent gaskets.

Other hardware

Generally, other hardware not listed above can be fitted to wood based doorsets for FD30 and FD60 applications with few restrictions provided:

- The item is surface mounted onto the door faces and does not rely upon fittings or fixings that penetrate through the door thickness by more than 50%.
- The fittings and fixings do not interrupt edge fixed intumescent seals fitted to the door leaf or frame.
- The item does not use plastic fittings in close proximity to steel elements passing through the thickness of the door. e.g. plastic fittings to lever sets in close proximity to steel spindles.

GENERAL NOTE:

It would be an impossible task to physically test every conceivable item of hardware with every possible door construction. Responsible hardware (and other doorset component) manufacturers (suppliers) will carry out testing independently and will permit 3rd. party certification providers to refer to their base test data for the purpose of assessing applications when used with particular door constructions that have otherwise been tested to the same performance requirements.

Any queries relating to the use of particular items of hardware not covered by reference to existing fire test / assessment data relating to particular Shadbolt door products should be referred to F. R. Shadbolt & Sons Ltd. for further guidance.

7. Handover

The installation process will usually conclude with an inspection and handover procedure when the installation at the point of delivery from the responsible contractor is verified as compliant with any certification and is operating satisfactorily.



A maintenance period normally follows during which the responsible contractor will correct defects that are his responsibility. Beyond this, ongoing maintenance of the installation is the responsibility of the owner (or user) of the premises.



As part of the handover the contractor who carried out the works should hand the Operations and Maintenance manual over to the building owner. This document should contain all relevant information to cover the certification of the doors, frames, ironmongery and any other item involved in the building and the fire rating of same.

It is important that this document is complete with all relevant information because it will form the reference file for years to come and will allow for any issues which do arise to be resolved by the correct parties quickly and easily.

8. Maintaining your fire doors

Maintenance & inspection

Fire resisting roods and frames must not only be installed correctly, but must also be maintained to a suitable standard to ensure they are fit for purpose. This is stipulated in article 17 of the Fire Safety Order and this forms a legal requirement. But more importantly than the legalities, fire doors are there to protect life, to allow people to escape in the case of a fire, if the fire doors have not been properly maintained and do not perform as required then peoples lives will be at risk.

In circumstances where doors and frames are not maintained, the authorities have the power to enforce the Fire Safety Order and to prosecute or even close buildings down where breaches are found and not resolved quickly enough if at all.

Building owners must have at least one 'competent person' referenced in the Fire Safety Order to ensure they comply with fire door regulations. They will have a register of all of the fire doors in the building and all must be inspected and maintained properly.

Fire doors should be inspected periodically, with the frequency depending on a few different criteria. The basic inspection should be carried out every 6 months in an established building and each inspection should be documented. It is recommended that for a new building, or one where the fire doors have only recently been installed, that the inspections are more regular than that to allow any issues arising from the new product to be picked up and resolved quickly. Also, any specific doors which are in high traffic areas and get a lot of use should be inspected more often than ones in areas which are rarely used to check for wear and tear and damaged caused by excessive use or misuse.

Inspections should always be carried out by a qualified and competent person who knows about fire doors, their certification and what issues to look out for. Any issues which are identified should be actioned and resolved as quickly as possible.

Maintenance Checklist

The below is a checklist of things which would be checked when inspecting a fire door, it is a minimum requirement and is not designed to be exhaustive or a checklist to use when carrying out an inspection, but is a guide of the main points which will be checked.

- ☐ The surrounding wall – Is the wall free from damage, or settlement cracks or any other signs of movement indicating that it may have shifted?
- ☐ The frame – Is it still securely fixed to the wall, have any gaps opened up behind any architraves for instance? Is there any damage?
- ☐ The door leaf – Is it still operating smoothly and closing properly? Are the gaps correct between the door and frame and between both leaves in the case of pairs? Is there any damage? Is the door still perfectly flat?
- ☐ Fire or acoustic seals – Are all of the seals specified in the O&M manual still present? Is there any damage? Are they still firmly fitted in their groove or are they loose? Does any threshold seal still operate?
- ☐ Hinges – Are all fixings still secure? Does the hinge operate smoothly? Are there any marks or dark stains around the knuckle which can be a sign of wear and possible failure?
- ☐ Signage & labels – Are all fire door signs securely fixed and clearly visible? Are all fire rating and door identification labels still present and in good condition to be read easily?
- ☐ Locks, latches, handles and keeps – Does the latch still engage securely when the door is shut? Are all fixings still secure to all components? Does the lever handle still come back to the horizontal after use?
- ☐ Self closing devices – Does the door close fully and smoothly causing the lock latch to engage? Is the door free to close without obstruction? Are any connections to a building management system still operational? Does the door close at a smooth steady rate?
- ☐ All remaining ironmongery – is it still operating as it should? Is there any visible damage?
- ☐ Door apertures and glass – Are all apertures and their contents still secure? Is there any damage to any component? Do any air transfer grills operate properly?
- ☐ Cleanliness – Are all items clean from dust or dirt?
- ☐ Remedial works – Have any works been carried out to the door since the last inspection, have they been completed correctly?

If any issues are identified by the inspection then they should be resolved as quickly as is practical, with repair or replacement work carried out as soon as practical. If in any doubt as to what repair work is needed consult the supplier of the item with the issue promptly, giving them all details to allow the to identify the part, and they will be able to advise and supply replacement parts if needed.

8. Maintaining your fire doors (cont'd)

Cleaning

Polished lacquer surfaces and laminate faced products should be kept clean using a soft cloth dampened with warm soapy water. A chamois leather dampened with clean water should be used for a final wipe over and to remove any residual water.

NOTE:

Proprietary silicon based furniture polishes should not be used.

Over time, depending upon usage and the cleaning methods employed, veneered products with clear lacquered finishes may need refurbishment. This is best carried out by skilled tradesmen using beeswax based polishes applied using Grade 000 wire wool. Surplus wax being removed and gloss levels adjusted, by the use of dry Grade 000 wire wool with the refurbishment treatment followed by a final cleaning using a clean knap free cloth.

General refurbishment can be carried out by external polishers if needed. If the repair needed is more onerous and required additional stain or paint then the door supplier should be contacted to source the same material as used originally if possible.

Damage prevention

Much damage to doors is caused by abusive use of the building. This may be unintentional and result from inadequate planning or briefing of personnel on the correct operation of the door system.

Those who use equipment that is potentially damage-causing can be trained and encouraged to prevent this.

Personnel using the building can make an important contribution to maintaining the quality and safety of the door installation if they are encouraged to use the installation in a caring manner.

1. Protective measures – Impact Damage.

Planning the operation and protection of doors will play an important part in the avoidance of damage to the door installation. The following measures will reduce the more predictable causes of damage:

Type of Damage	Preventative measure
Damage caused by objects being wheeled or dragged through the doorway:	The use of a hold open device with doors on frequently trafficked corridors linked in with a fire detection system, if applicable.
Damage to faces and the leading edge of door leaves.	Delayed action closers set to allow for the passage of encumbered users and wheeled items.
Broken lippings, damaged smoke and intumescent seals.	
Damage caused by impact by wheeled equipment.	Rail or guards that will deflect the equipment.
Dislocation of doorframe fixings.	Recesses in corridor walls within which held-open door leaves will be protected from edge damage.
Damage to doorframes, door faces and edges.	Fit buffers to equipment.

2. Protective measures – Moisture Damage.

Unless otherwise specified in advance of manufacture, doorsets, wall panels and other wood based components intended for use in internal locations are manufactured using materials, adhesives and finishes that are suitable for internal use. Extensive damage can be caused by use of ‘wash down’ cleaning methods.

Timber is naturally hygroscopic and will readily absorb moisture, particularly through end grain. Excessive wet cleaning of floors can result in frame jambs absorbing moisture with consequent swelling and damage to finishing.

The bottom edges of door leaves, (particularly if lipped on vertical edges only) wall panels and skirting may also absorb moisture with similar effects. To minimise this risk mops should be squeezed to remove excessive liquid and areas cleaned using wet cleaning methods should be dried using a dry mop immediately after cleaning.

NOTE:

Shadbolt recommends that doors which are to be located in areas where a wet mop might be used (e.g. toilet & shower areas) should always feature hardwood lippings to all edges.

9. Troubleshooting

Binding

The most common malfunction is a loss of operating gaps that result in door leaves sticking or failing to close correctly. It may be that the leading edge binds on the doorframe or at meeting edges of double leaf doors. Often the bottom edge of a door will bind on the floor.

Defect	Possible Cause	Remedial options
Swelling of door components due to moisture intake.	Moisture content in the building is too high.	Reduce humidity. Do not adjust doors unless essential until the moisture content is stable at 12% (for internal use).
Hinges have worked loose allowing door leaf to fall away from the hanging jamb.	Stressing caused by racking or blocks put in hinge side rebate to hold doors open. Wrong size screw fixings. Not all screw positions have been used.	Remove obstructions. Tighten fixing screws. If necessary increase screw size. Replace if defective. Provide restraint to prevent racking.
Hinges have worn allowing door leaf to drop.	Hinges are not to the correct BS EN 1935 class for the application.	Replace with correct class of hinge.



Defect	Possible Cause	Remedial options
Door frame jambs have spread at the bottom allowing the leading edge of the door leaf / leaves to drop.	Door leaf weight may cause compression of packing or stud due to the effect of lateral load at the bottom hinge position.	Check that the background is stable and that it will support the lateral load. Re-pack at fixing positions particularly at the bottom, until the door leaves hang correctly. Re-fix doorframe.
Doorframe fixings are loose.	Racking exerting leverage on door-frame fixings. Overdrilling or breakout of fixing positions. Impact from wheeled loads.	Re-pack and correct the hang of the door leaf. Tighten fixing screws and if necessary replace failed plugs or make new fixing positions. Provide restraint to prevent racking. Provide protective rails / guards to deflect wheeled traffic away from the door frame.
Door leaf binding on floor.	Floor covering may be over planned thickness. Possible high spot in screed within the arc of the door. Doorframe not set plumb.	Re-fix the door as necessary. Packing under frame jambs may raise the door sufficient to clear obstacle.
Binding and none of the previous apply.	It is possible that the edge gap has been set too fine.	Adjust the gap by deepening or moving the hinge recess/es in the door frame or leaf. Bevel closing stile to maintain a minimum gap on the hinge knuckle face.

9. Troubleshooting

Oversized gaps and Failure to close

Oversized gaps

Operating gaps may become enlarged and may exceed the range permitted by specifications and test and assessment reports.

Defect	Possible Cause	Remedial options
When no smoke or acoustic seal is present:	Shrinkage of door components, packings and timber grounds, studs or subframes.	Pack out behind hinges. If necessary re-pack and re-fix doorframe. Re-lip (by manufacturer) and replace seals.
When smoke or acoustic seal is present:	Shrinkage or disturbance caused by impact. Seals have worn or have become permanently compressed.	Pack out behind hinges. If necessary re-pack and re-fix doorframe. Replace seals with new or larger.
Any visible gap.	Extended pivot centre hanging devices.	Profile closing stile of leaf to suit closing arc of door.

Failure to close

In addition to closing failure caused by loss of operating gaps, other defects can develop or become apparent:

Defect	Possible Cause	Remedial options
Hinge binding resulting in the door leaf tending to spring open.	Hinges have not been sufficiently recessed. The doorstop is too tight on the closing face of the door leaf at the hinged edge.	Modify fitting of hinges. Adjust position of doorstops. Reset hinge positions when door-frame has an integral doorstop.
Door leaves twisted, bowed or cupped.	Twist caused by hold open device that is not level with the closing force. Hygrothermal differences on faces.	Remove the cause; the door leaf may return to a flat condition. If not, replace door leaf. Relocate hold open device. Reduce the effect by relocating hinges.
Door leaves fail to latch	Closer failing to overcome resistance of latch or seals. Latch bolt and keep plate may have become misaligned. Door bolts may not be engaged. Misalignment of door bolts and sockets.	Adjust closer speed and latching action. If necessary fit larger closer. Change seals. Reposition keep plate. Ensure that users engage bolts at top and bottom of door leaf. Realign bolts with sockets by adjustment of the doorframe fixings.
Binding of smoke or acoustic seals when none of the previous problems apply.	It is possible that the leading edge gap has been set too fine. Seals may be broken or disrupted by wear due to incorrect fitting.	When applicable, modify retaining grooves to suit. The seals, if in good condition, may be refitted. Fit smaller seals. If damaged, seals should be replaced with attention to correct fitting and cause of disruption

SHADBOLT DOORS

7-9 Springwood Drive, Braintree, Essex, CM7 2YN

T: +44 (0)1376 333376

E: sales@shadboltdoors.com

www.shadboltdoors.com

This document is for guidance only cannot be referred to as being
proof of any claims with
regard to the performance of goods supplied by
Shadbolt Doors Ltd. for any particular project.

The guidance provided by this document may be varied to suit
particular doorset designs and / or the demands or circumstances
relating to a particular project. Queries relating to specific project
requirements should be referred to Shadbolt Doors directly.

This document may be amended at any time without notice, to
accommodate variations and improvements in products resulting from
on going product research and development programmes.

© Shadbolt Doors Ltd 2026