Revision F - September 2024

Lewis Aldridge

manual

custom made timber doorsets

Installation Manual - pre-installation, preparation site reception, handling, storage and installation

Fire Rated Doorsets

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Introduction

This manual is designed to be a guide in assisting during the planning and execution stages of contracts that involve installation of custom-made doors.

The definition of 'door' adopted by Lewis Aldridge reflects the definition given in Approved Document B of the Building Regulations (England and Wales) regarding fire doors:

> A complete door assembly comprising door frame, door leaves, other panels, hardware, seals and any glazing... plus, for fire doors... that when closed is intended to resist the passage of fire and smoke in accordance with specific criteria.

door = complete installed assembly

Doorsets are not free standing products and they will not provide for any design performance until they have been competently installed into a suitable structure.

The primary purpose of any doorset is to provide a means for 'traffic' to pass from one side of a wall to the other. To achieve this objective the doorset should be easy to use. If the installed doorset is difficult to operate the users of the building may disable elements of the doorset on the basis of user convenience with consequential safety risks, e.g. by wedging fire doors in an open position.

90 minute (FD90) and 120 minute (FD120) integrity doorsets are only supplied as complete doorsets. The doorsets should not be modified in any way (sizing, glazing, additional ironmongery, etc).

1.1 Third-party Certification for the Installation of Fire Doors

Third-party certified installers undergo training and are subject to annual audits to ensure continued quality. A third-party certified installer can only install fire doors using products and techniques for which they hold sufficient evidence. This means that all elements of their installations have been tested or allowed through expert assessment and certified by a UKAS accredited body.

Some third-party certification installation schemes are shown below, although others are available.

- **Q Mark Fire Door Installation**
- **FIRAS**
- **IFCC**

1.2 Rules and Regulations Relating to Installation

It is vital that performance doorsets are installed by competent tradesmen and it is strongly recommended that the installer is a member of a recognised quality assurance scheme. The installer should always wear adequate PPE and use appropriate tools. Installers should be familiar with the content of BS 8214: 2016 'Timber-based Fire Door Assemblies - Code of Practice'.

Care should be taken to ensure that when installing hardware with the use of battery powered tools, the correct torque settings are applied to the tools to minimise the risk of over-tightening or spinning of screw fixings.

The Building Regulations for Fire Safety Approved Document B states:

'Recommendations for the specification, design, construction, installation and maintenance of fire doorsets constructed with non-metallic door leaves are given in BS 8214: 2016

Guidance on timber fire resisting doorsets, in relation to the new European test standard, may be found in Timber Fire Resisting Doorsets: Maintaining Performance Under the New European Test Standard published by TRADA'

The Regulatory Reform (Fire Safety) Order 2005 (RRO) requires that all 'non-dwelling' buildings are subject to regular and ongoing fire risk assessments, in which fire doors should be inspected and maintained. The order also designates a Responsible Person (RP) for a building and makes them responsible for the fire risk assessment. Failure to do so may make the Responsible Person liable for any failures in fire safety.

Further regulation and guidance documents that should be considered in relation to fire doors in England and Wales include:

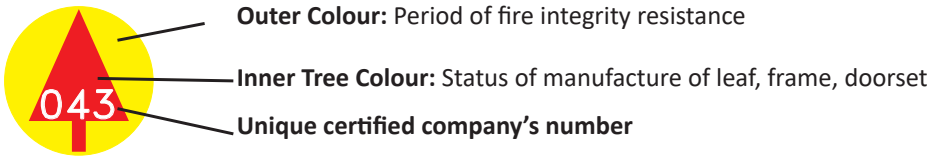
Approved Document B – Fire Safety
Approved Document E – Resistance to the passage of sound
Approved Document K – Protection from falling, collision and impact
Approved Document L – Conservation of fuel and power
Approved Document M – Access to and use of buildings
Approved Document Q – Security in dwellings
Approved Document 7 – Materials and Workmanship
Regulation 38 – requires the handover of 'as built' fire safety information to the Responsible Person.

1.3 Q-Mark fire door manufacturer scheme

The Q-Mark Fire Door Manufacturer Scheme has been designed to allow fire door manufacturers to demonstrate that their doors and doorsets meet the standards required, and to provide ongoing reassurance that their product is fit for purpose.

This comprehensive certification for timber doors ensure that performance, production and installation is checked regularly through audit testing and inspections. This is achieved through periodic factory audits and ongoing testing of sample doors taken directly from the production line throughout a three year cycle.

Plug Definitions



	Yellow Outer	**30 minute** fire integrity period (FD30). Used for either partial or complete doorsets
	Blue Outer	**60 minute** fire integrity period (FD60). Used for either partial or complete doorsets
	Brown Outer	**90 minute** fire integrity period (FD90). Used for complete doorsets only
	Black Outer	**120 minute** fire integrity period (FD120). Used for complete doorsets only

	Door Leaf or Door Frame
(Red)	Approved door or frame (FD30 and FD60 only) The door leaf or door frame will not be in a finished state. It may not be fully prepared for the required intumescent strips or hardware. Therefore further work is needed to be carried out before the door leaf assembly is ready to be hung into a door frame.
(Green)	Approved door or frame Intumescent seals prepped for and supplied (may be loose) The door leaf or frame may not be fully prepared for all of the appropriate hardware.
(Orange)	Approved door with factory fitted glazing

Q-Mark fire door manufacturer scheme c'td

	Complete Doorset
 (Silver)	Certified factory hung doorset. It is permissible for hardware such as locks, hinges and door closers to be fitted on site but the preparations to accept the hardware will have been completed in the factory.

	Q-Mark Fire Door Installation
 (Gold)	Certified installed doorset. The gold plug can only be fitted to a Q-Mark certified (factory hung) fire doorset, identified as such by having a silver tree plug fitted to the door leaf.

	Q-Mark Fire Door and Doorset Modifications
 (Red) (Green) (Orange) (Silver) (Gold)	For all Q Mark doors and doorsets: Modifications are not allowed to be carried out on site. Modifications must be carried out by a Q Mark certified manufacturer to maintain certification. Site modifications or modifications by non-registered Q Mark manufacturers will invalidate the Q Mark Certification. If site modifications are required please contact the manufacturer prior to starting any modification whatsoever

2. Pre-Installation Preparation

2.1 First or second fix

Best practice is second-fix operation with openings prepared as construction proceeds and pre-hung door assemblies are installed later. The advantages are:

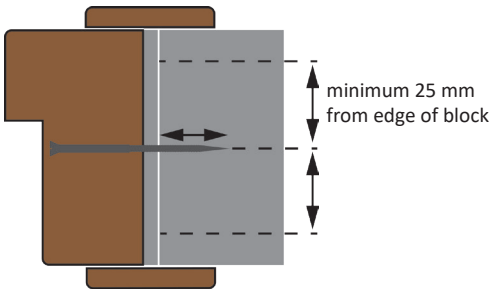
- Operating gaps (which may contain edge seals) can be maintained
- Doors are delivered to site when site conditions are suitable

2.2 Door Frame Design

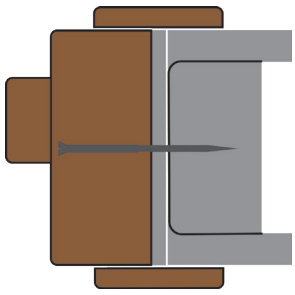
The door frame must allow for secure fixing.

Note:

1. Fixing must be in at least 25 mm from the edge of the masonry (excluding any plaster)
2. Fixings into metal stud partitions should be made into full-length timber filler in the stud. Make fixings into each jamb spaced 100 mm from top and bottom with others a maximum of 500 mm apart. The fixing must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 40 mm. It is not necessary to fix the frame head, although packers must be inserted. (A centre fixing through the head is sometimes used when deflection is not a risk)
3. Care should be exercised when fixing door frames to ensure that jambs and head are fitted both plumb and square (in the horizontal and vertical plane) to prevent any issues with bowing or twisting frame sections, that may then have a detrimental affect on the 3 mm gap tolerances recommended by Lewis Aldridge for Fire, Smoke, DDA and acoustic performance.
4. Fixings may be covered by the use of the door stop, pellets or by the intumescent seals



Secure Fixing Zone



Timber Stud Filler

2.3 Co-ordinating dimensions

The co-ordination height, width and thickness of prepared openings, the fitting-in margin and allowance tolerances must be planned. This information must be available before the start of door frame manufacture.

Lewis Aldridge will accept one of two co-ordinating dimensions:

1. Structural Opening
2. Outside Frame

The dimension type MUST BE STATED when supplying dimensions.

2.3.1 Prepared structural openings

Prepared structural openings must be plumb, square, built to the co-ordinating dimensions subject to a tolerance of +5/-0 mm at each jamb and +5/-0 mm at the head and be of constant co-ordinating thickness around their perimeter within a tolerance of +/- 3 mm. It is vital to control partition thickness if architraves are to be fitted without excessive trimming and scribing.

Check accuracy of prepared structural openings as early as possible so that any remedial work can be completed before any attempt is made to install doors.

2.3.2 Undercut tolerances

Additional guidance on undercuts can be found in BS8214 but the following are guidelines recommended by Lewis Aldridge.

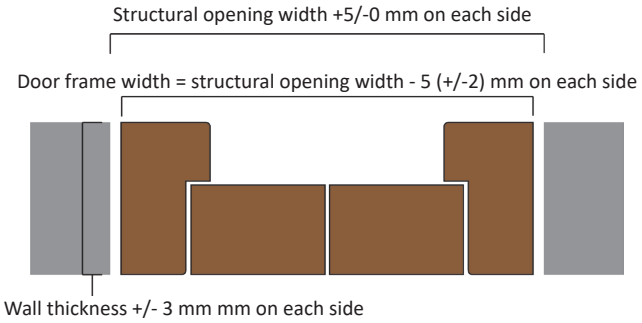
Fire only doors = 10 mm maximum undercut from top of finished floor finishes to underside of door.

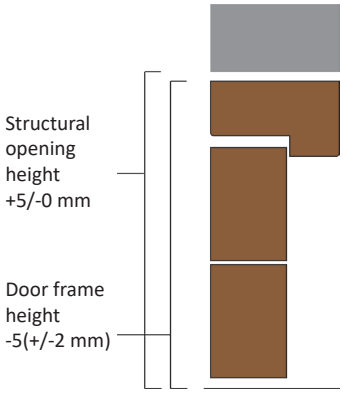
Fire and smoke controlled doors = 3 mm maximum undercut from top of finished floor to underside of door. This can be increased to 10 mm with the use of a suitable threshold sealing system.

Lewis Aldridge understand the tight tolerances specified, by the rules of BS8214, for smoke controlled doors and recommend that contact be made with Local Building Control or Fire Officer to seek a solution agreeable to all parties prior to doorset manufacture commencing.

2.3.3 Door frame size and fitting-in margin

The overall door frame dimensions should be the structural height and width - 5 mm (+/-2) on each jamb and at the head to allow door frames to be packed up a few millimetres if necessary for the door leaf to swing over high spots of floor coverings.





2.4 Recesses for floor mounted closer boxes

Plan pockets to receive closer boxes in reinforcement, floors and screeds.

The pockets must be formed and located with great accuracy to co-ordinate with the door frame position.

For projects where underfloor heating is employed, the planning of closer boxes, within the floor construction, and consideration for fixing of doorstops in advance is critical.

3. Site Reception

3.1 Moisture Content

Timber doors are manufactured with moisture content of 10-12% for internal use and 12-14% for external use. The application standard for this subject is BS EN 942:1996 Timber in joinery. General classification of timber quality.

Do not bring joinery to site until moisture readings are between 40 and 60% RH and until after forced-drying procedure has been completed. All wet trades should have finished on site.

3.2 Storage area

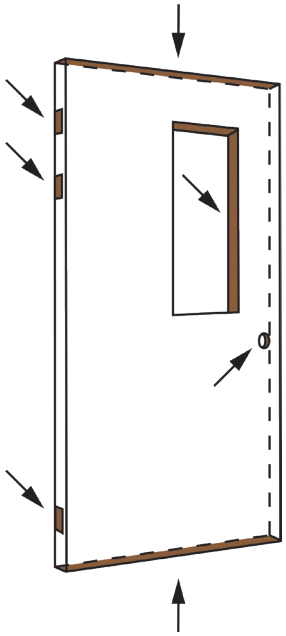
The store must be clean, level, suitable for stacking doors and provide sufficient space for doors to be moved around, sorted and re-stacked as installation proceeds. The floor should be suitable to allow the use of pallet moving equipment.

3.3 Priming and sealing

The applicable British Standard is BS 6150:1991

Code of Practice for painting buildings

- Prime and/or seal all items supplied in the white immediately following delivery including bottom edges, top edges, apertures and preparations for hardware.
- Apply further coats within a reasonable time (preferably within days) and before door leaves are hung or assemblies are installed.



3.4 Handling

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

3.5 Stacking

3.5.1 Door Leaves

Do not store door leaves standing upright or leaning as this causes bowing.

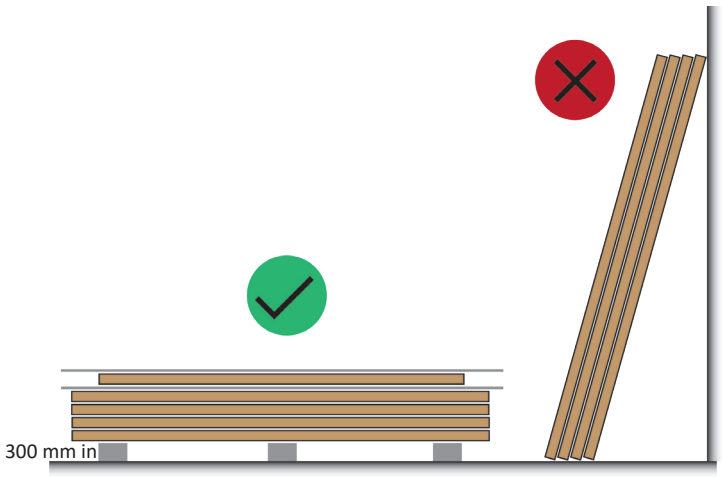
Stack horizontally on level supports that extend across the full width of the bottom door leaf. Provide support at the centre and at 300 mm from each end.
If door leaf is over 2150 mm in height, provide a second intermediate support.

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 door leaves 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.

3.5.2 Assemblies

The same principles apply when storing door assemblies. Stack with the door leaf lying in the closed position on the door frame doorstop.



Separate each assembly with level battens to ensure that projections such as hinge knuckles do not cause damage.

3.5.3 Covering

Exposure to light will fade timber. Cover stacks with opaque sheeting to prevent fading and keep doors clean. This is especially important for veneered doors.

4. Hardware

4.1 Preparation for hardware

Before installation, prepare doors to receive hardware using instructions provided by the hardware manufacturer or supplier.

Note: Preparations are often available from Lewis Aldridge. These may be supplied 'off machine' i.e. with corners not squared out. Factory assembled doors can be made fully prepared for hardware with door leaves hung in position, though possibly removed for transit.

It is strongly recommended that any doorset requiring concealed closer systems should have this product, and its associated intumescent gasket system, supplied and installed by Lewis Aldridge under factory conditions to ensure full compliance measures are maintained.

4.2 Fitting hardware

Fit hardware using instructions provided by the manufacturer or supplier.

Fit mortised hardware before hanging door leaves or installing door assemblies.

Fit intumescent materials exactly in accordance with details supplied.

Fit face fixed hardware at any convenient stage in the installation programme.

Note: This work is often carried out immediately prior to handover to avoid the risk of loss or damage. The drilling of door leaf faces for latch spindles and keyways or cylinders is best left until there is no risk of further adjustment to the position of the lock cases or keeps.

Lubricate hardware as required by manufacturer's instructions.

Further information for hardware is available in section 6 of this manual.

5. Glazing

The applicable standard is BS 6262: 1982 Code of practice for glazing buildings. Glaze fire doors strictly in accordance with the specification for each type provided by the supplier and supported by evidence of test or assessment by a recognised authority. The specification is available from Lewis Aldridge upon request.

Fire performances up to 60 minute integrity require beading using Min. 640 kg/m^3 @ 15% moisture content hardwood. Fixings should be inserted at 35-40^0 to the vertical at no more than 50 mm from each corner and at 150 mm max centres.

Multiple apertures are acceptable provided that the total glazed area does not exceed the maximum approved area for the application.

30 Minute Integrity (FD30):
Generally beads must be fixed using Min 40 mm long x 2 mm diameter steel pins or 40 mm long No.6-8 screws. The maximum recommended area for glazing is 1.9 m^2 (subject to maintenance of minimum margin requirements).

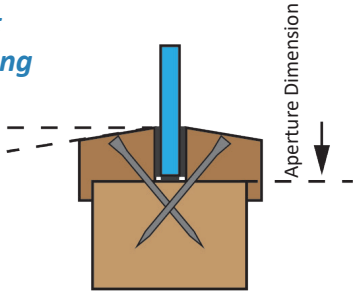
60 Minute Integrity (FD60):
Generally beads must be fixed using Min 60 mm long x 2 mm diameter steel pins or 60 mm long No.6-8 screws. The maximum recommended area for glazing is 0.925 m^2 (subject to maintenance of minimum margin requirements).

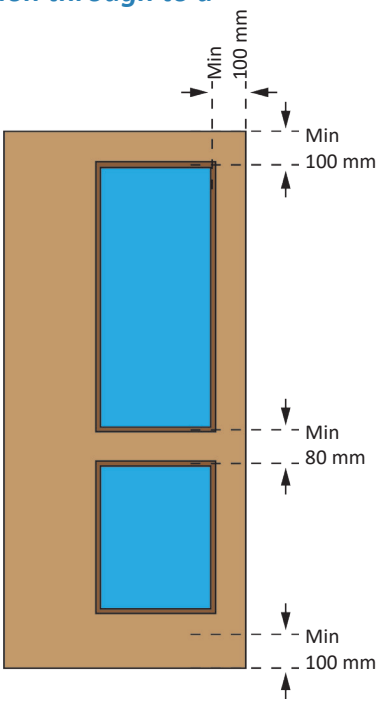
Lewis Aldridge would strongly advise that vision panel requirements should be established prior to ordering doorsets and that all glazed panels are factory fitted.

Note 1: Fixings for beading must pass from the bead fixing position through to a point that is beyond the centre thickness of the door leaf glass.

Note 2: Where removable screw fixed beads are required, (e.g. provision for glass replacement) the screws should be to one face only. Steel cups & screws should be used for this purpose. Glass replacement must only be carried out by a qualified glazier.

Note 3: Any damaged intumescent glazing system or hardwood beading must be replaced using the same system as originally used when raplacing damaged glass.





Lewis Aldridge

6. Door installation

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

- Shrinkage due to drying out
- Growth due to increase in moisture
- Deflection of structural members

Defer installation if conditions are not suitable.

Installers should be familiar with the content of BS8214: 2008 Code of practice for fire door assemblies. Further guidance can be supplied upon request.

This section provides for further guidance but does not include for details with regard to any particular brand or type of fixing or for any particular method of packing doorsets at fixing positions. Most installers have their preferred methods but these should generally comply with the following advice.

Lewis Aldridge doorsets are generally Q-Mark approved for installation into most structures including:

- Cast dense concrete
- Dense concrete blocks or brickwork
- Lightweight concrete
- Lightweight aerated concrete
- Timber stud partition
- Steel stud partition

Note 1
All structures should provide for secure fixings and in the case of steel stud partitions, the jamb fixing studs should generally be back filled with softwood to receive fixings

Note 2
Doorsets may be fixed to some proprietary steel stud partitions where the particular partition system has been successfully tested to the required performance with timber doorsets. In this event fixings must comply with the partition suppliers (manufacturers) specifications.

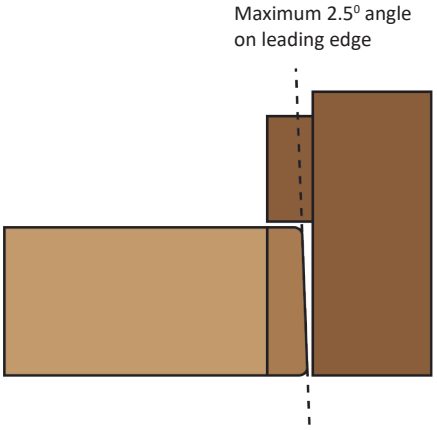
6.1 Hanging door leaves

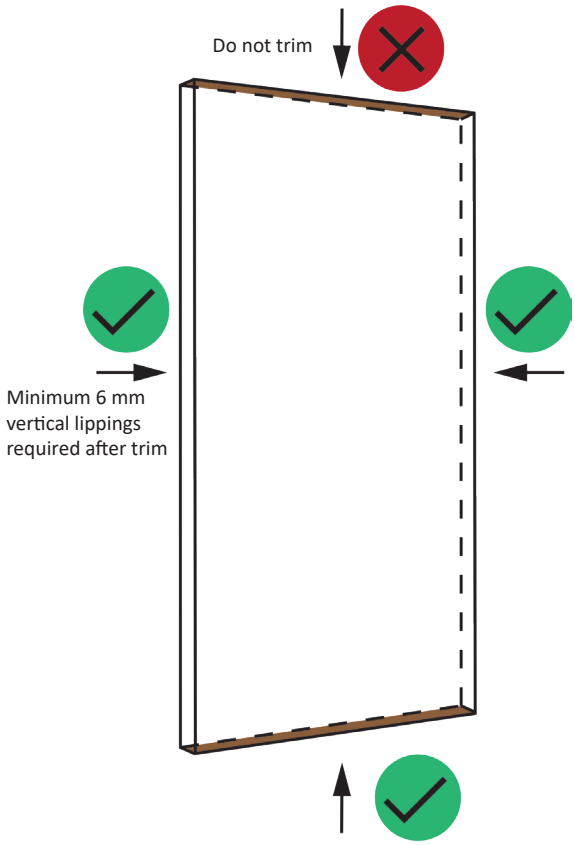
6.1.1 Trimming Edges

When it is necessary to trim door leaves, remove equal amounts from each vertical edge and make all height adjustments to the bottom of the door leaf. Unless otherwise specified (or requested), Lewis Aldridge will generally apply 8 mm lippings to each edge. The minimum requirement for lippings on a fire door is 6 mm. If site trimming is required please request a copy of the relevant Field of Application document to confirm maximum permissible trim allowance.

Note:

- It may be necessary to apply a lead-in of maximum 2.5 degrees to the leading edge to allow it to close while maintaining the correct gap on the knuckle face.
- Exposed seals must be replaced after any size adjustment has been made





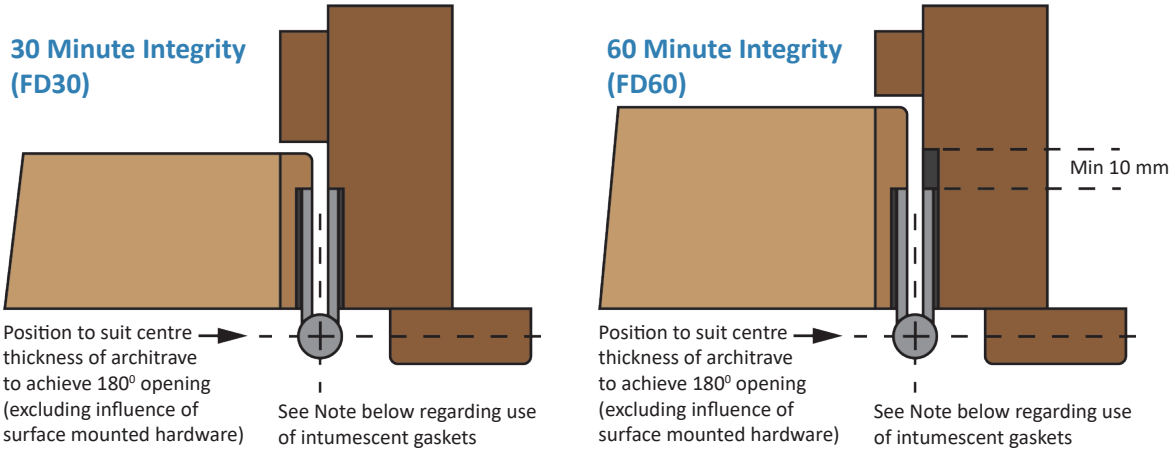
6.1.2 Hinges

Hinges must be able to support loads imposed by the door leaf and hardware functions such as self-closing and back check. Consult the hardware supplier if necessary

Use 3 hinges per door leaf for all fire doors or when above 1000 mm in width unless otherwise specified.

When door leaves exceed 2200 mm in height or 160 kg, consult the hardware supplier. One or more additional hinges may be required.

The addition of certain door closers increases the 'effective' weight of the door leaf. Hardware should be taken into account when working out the weight.



Notes

1. ***In addition to the information contained in the table on the following page, the hinges should provide for the appropriate BS EN 1935:2002 performance according to the door weight and anticipated usage.***
2. ***The hinge knuckle centre should be set as near to the door face as possible to minimise the 'door growth' during operation.***
3. ***A hinge knuckle centre at the centre of the architrave thickness will allow for 180⁰ opening (excluding the influence of other surface mounted hardware).***
4. ***Pilot holes should be drilled to receive hinge fixing screws with hinges fixed to the door leaf using minimum 38 mm No. 8 fully threaded 'Twinfast' or course threaded chipboard screws for solid particleboard cores and 30 mm No 8 or No 10 steel wood screws for solid laminated wood cores.***
5. ***30 Minute Integrity (FD30): Intumescent gaskets are not required for use under hinge blades for door leaf heights less than 2670 mm. Lewis Aldridge will always prep for them as standard when prepping for hinges. For panelled effect doors intumescent gaskets are required under both blades for leaf heights over 2440 mm***
6. ***60 Minute Integrity (FD60): For door leaf heights less than 2285 mm intumescent gaskets are not required for use under the hinge blades provided that the hinge design permits a minimum of 10 mm of the intumescent seal to run uninterrupted past the hinge blade. Lewis Aldridge will always prep for them as standard when prepping for hinges. For panelled effect doors intumescent gaskets are required under both blades for leaf on all configurations***

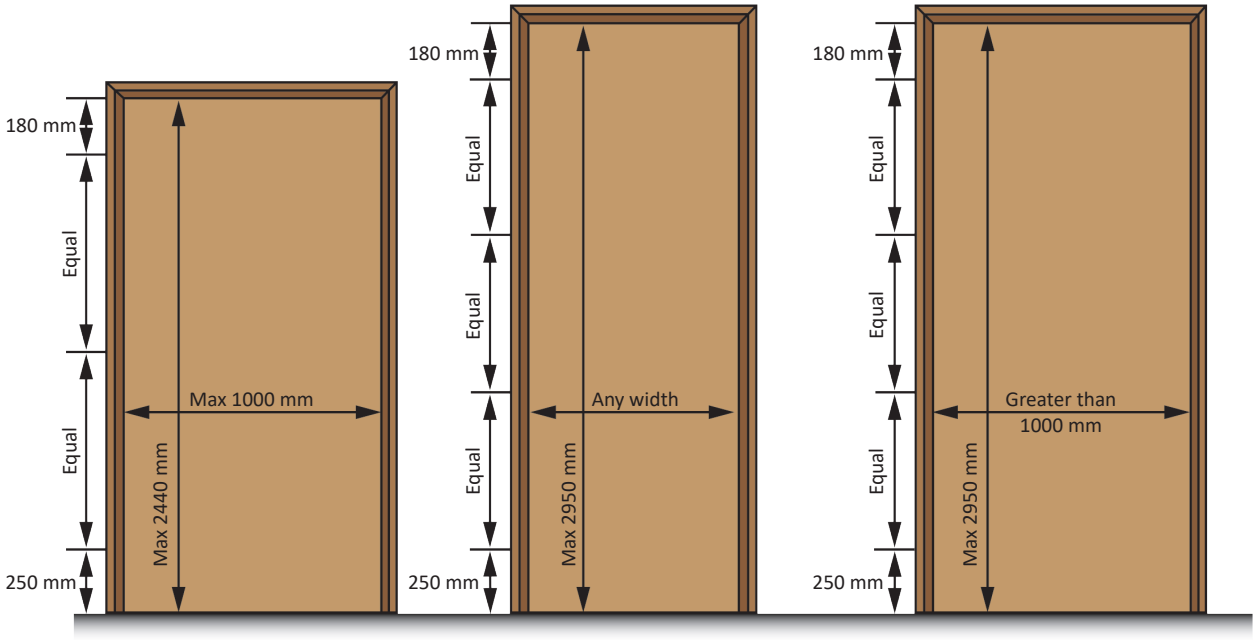
Particleboard (Chipboard) Cores - Solid

Particleboard Cores	30 Minute Integrity (FD30)	60 Minute Integrity (FD60)
Blade Height	90 - 120 mm	90 - 120 mm
Blade Width (excluding knuckle)	30 - 35 mm	33 - 35 mm
Fixings	Min. 4 No. 38 mm long No 8 fully threaded 'Twinfast' or chipboard screws per hinge blade, core only	Min. 4 No. 38 mm long No 8 fully threaded 'Twinfast' or chipboard screws per hinge blade, core only
Materials	Steel or stainless steel	Steel or stainless steel
Intumescent Protection ***(see notes 5 & 6 on previous page)***	1 mm interdens or intumescent sheet	1 mm interdens or intumescent sheet
Hinge Positions: Leaf dimensions <2400 mm	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door
Hinge Positions: Leaf dimensions >2400 mm	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door

Laminated Wood Cores - Solid

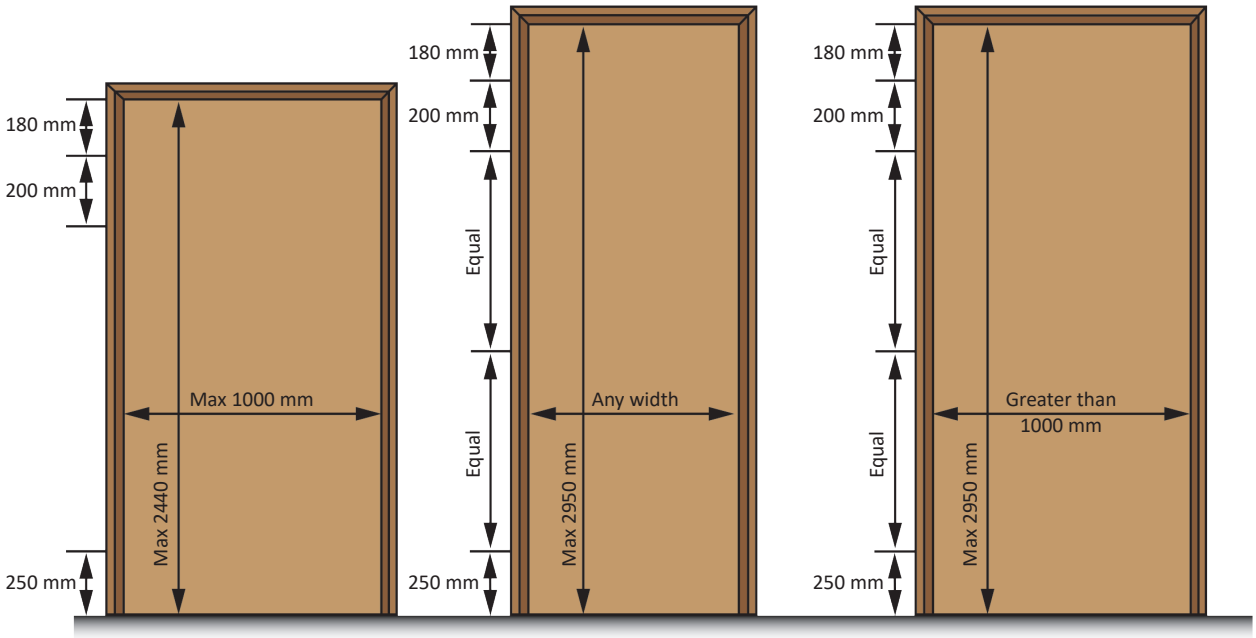
Laminated Cores	30 Minute Integrity (FD30)	60 Minute Integrity (FD60)
Blade Height	90 - 120 mm	90 - 120 mm
Blade Width (excluding knuckle)	30 - 35 mm	30 - 35 mm
Fixings	Min. 4 No. 30 mm long No 8 or No 10 steel wood screws per hinge blade	Min. 4 No. 30 mm long No 8 or No 10 steel wood screws per hinge blade
Materials	Steel or stainless steel	Steel or stainless steel
Intumescent Protection ***(see notes 5 & 6 on previous page)***	1 mm interdens or intumescent sheet	1 mm interdens or intumescent sheet
Hinge Positions: Leaf dimensions <2400 mm	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door
Hinge Positions: Leaf dimensions >2400 mm	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door

Standard Hinge Position - Lewis Aldridge



Note: • Where any height or width is shown please check relevant test evidence for fire certification coverage

Hi-Load Hinge Position - Lewis Aldridge



Note: • Where any height or width is shown please check relevant test evidence for fire certification coverage

6.2 Installing second-fix

6.2.1 Locating doorsets

For 2nd fix fire door installation, doorsets must be positioned centrally in the opening width with equal packing to both sides.

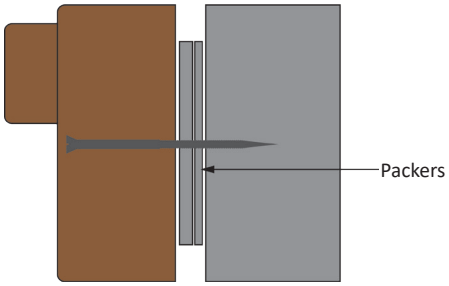
For single action doors it is recommended that doorsets are aligned with the wall / partition faces towards the opening face of the door. For double action doorsets doorsets should be aligned relative to a single selected face.

6.2.2 Packing

Pack between the door frame and the prepared opening immediately above each fixing position. Ensure that the door assembly when in position is perfectly plumb and square. The best practice is to use the hung leaf as a template. Avoid later shrinkage by using packing that is durable, hard and stable. Proprietary trouser leg packers are best. Alternatives are off-cuts of laminate, metal shims or plywood.

Ensure the jambs are straight, operating gaps are even and in tolerance and that fixing screws cannot distort the frame when tightened.

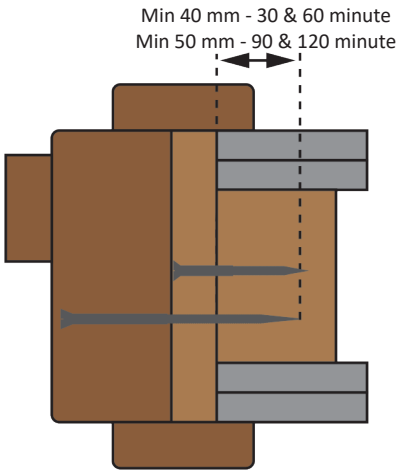
Note: The lateral force at the bottom hinge position can compress packings and metal studs causing the leading edge to drop. Before installing, ensure that studs are secure and fillings are dry.



6.2.3 Fixing

When the door frame has been packed into the prepared opening, remove the door leaves if necessary to facilitate fixing.

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 must penetrate the structure to a minimum depth of:
40 mm for 30 & 60 minute integrity (FD30 & FD60)
50 mm for 90 & 120 minute integrity (FD90 & FD120)

Note: Where grounds are used, the fixings must pass through the grounds to the above minimum depth into the surrounding structure.

When installing doorsets into masonry walls it is recommended that fixings should be located at least 25 mm from the face of the base block work or brick work wall. (See fig 1 on page 8)

Fixing c'td

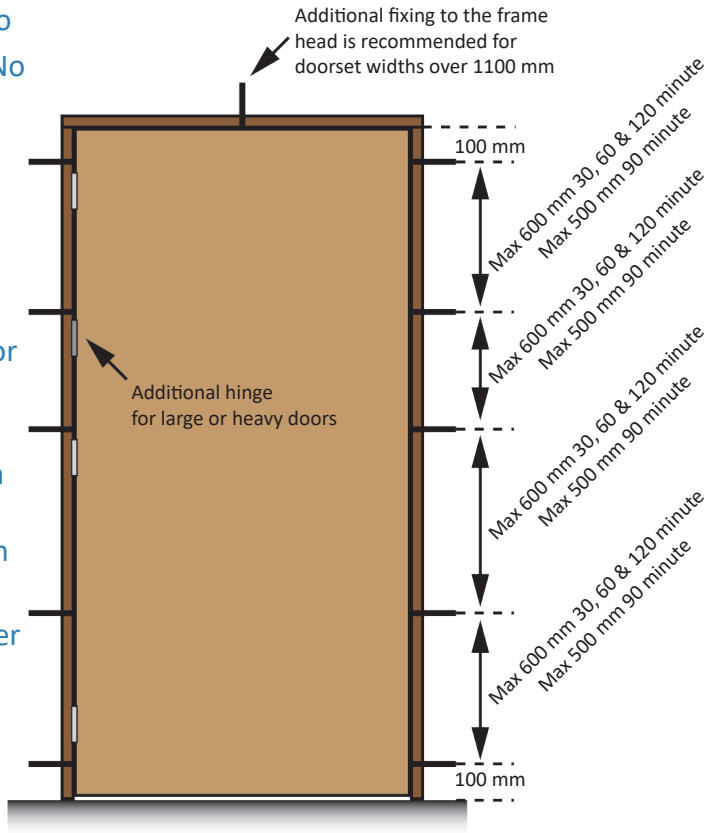
Steel wood screws are approved for use with timber stud partitions and for use with steel partitions that incorporate a timber infill.

When fixing to proprietary 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.

Fix door frames in metal stud partitions with wood screws having drilled a pilot hole through the stud into the timber stud filler. Ensure that the door frame fixing pulls the timber filling tightly into the stud and pulls the stud tight against the packing.

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 100 mm from the underside of the frame head
- A bottom fixing must be located within 100 mm from the bottom of the jamb
- Intermediate fixings must be located at centres of not more than 600 mm (500 mm is good practice) for 30 & 60 minute integrity (FD30 & FD60) and not more than 500 mm for 90 and 120 minute integrity (FD90 & FD120)
- The minimum number of fixings in height must be:
  1. Doorset height up to 2000 mm = 4 No
  2. Doorset height 2000 - 2500 mm = 5 No
  3. Add 1 No fixing for each further 500 mm increase in doorset height
- For storey height doorsets a top fixing must be provided within 100 mm from the underside of the frame head with a further top fixing positioned 100 mm from the underside of the transom rail (or bottom edge of the over-panel if a flush over-panel design is used)
- For doorset widths in excess of 1100 mm 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 600 mm to a maximum of 500 mm



Fixing c'td

Re-hang door leaves. Check and adjust for correct gaps and operation of seals

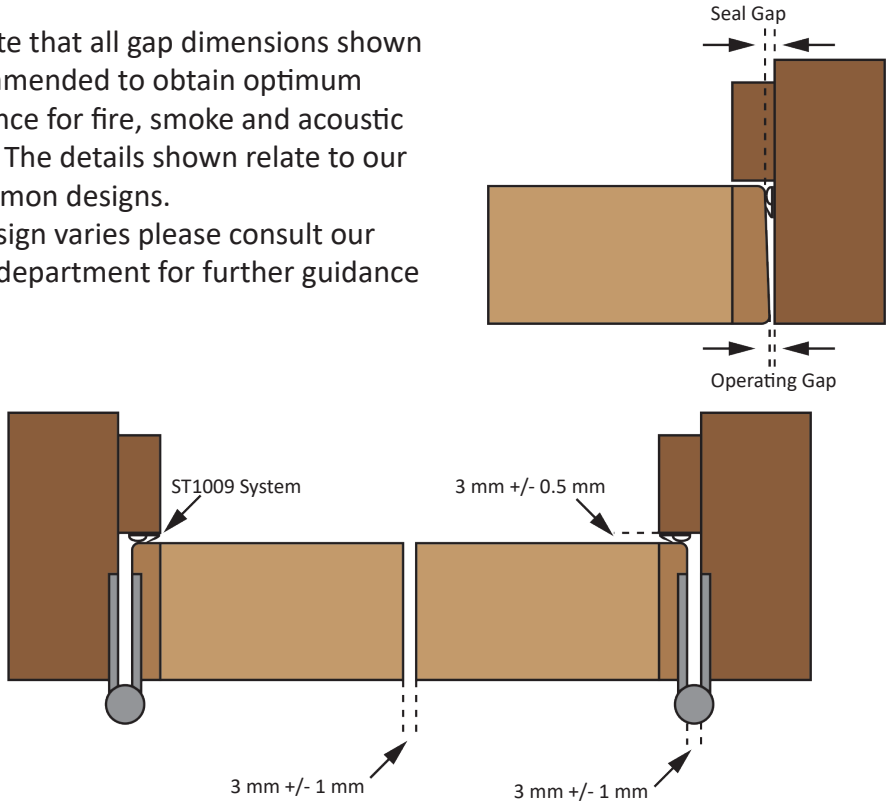
Note: Adjustment to the fit of door leaves at the installation stage should be deferred until the site is completely dry when the defect will be fully apparent and can be remedied in a single operation.

- Adjustments made too early can result in excessive gaps as the building dries
- If possible, carry out adjustments by reducing or increasing packing. Alternatively, pack out behind the hinges or recess them further
- Only as a last resort should door leaf edges be trimmed; this may necessitate replacement of seals and repositioning of hardware affecting the quality and integrity of the door.

6.2.4 Door gaps and the ST1009 system

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

Please note that all gap dimensions shown are recommended to obtain optimum performance for fire, smoke and acoustic solutions. The details shown relate to our most common designs.
If your design varies please consult our technical department for further guidance



6.2.5 Door stops

Fix loose doorstops after all adjustments. Fit to suit the shape of the door leaf, permit an easy latching action and ensure any seals are in correct contact with the door leaf face.

Global assessments do not specifically identify the fixing positions for doorstops in accordance with fire performance.

It is therefore recommended that doorstops be pinned or screwed into position at centres that ensure the doorstop is in full contact with the door frame face at all times. Water based glue may be used in addition to mechanical fixings if required.

Wide doorstops may require parallel or staggered fixings to ensure a good fit

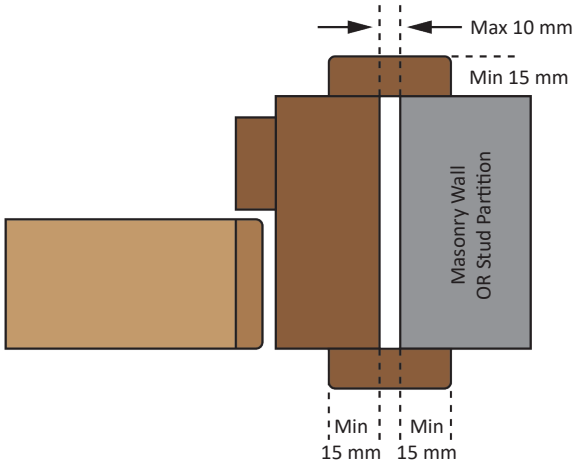
6.2.6 Installation Gaps

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

The recommended minimum gap is 3 mm at each jamb and 6 mm at the head, but this is only possible where the openings are plumb and square, and prepared to exacting tolerances.

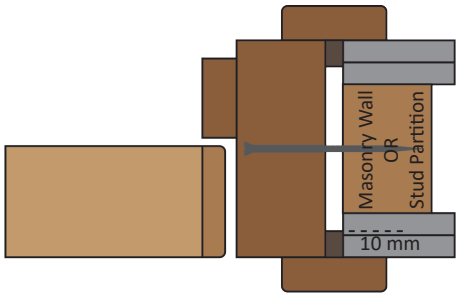
Fill the installation gap to suit fire, smoke or acoustic requirements before fitting architraves or installing the second half of split frames with integral architraves. Architraves alone may fire-stop gaps of 30 minute integrity (FD30) doorsets but will not prevent leakage of cold smoke. To prevent cold smoke leakage the filler must completely close the gap and have some flexibility.

BS8214 : 2008 Compliant



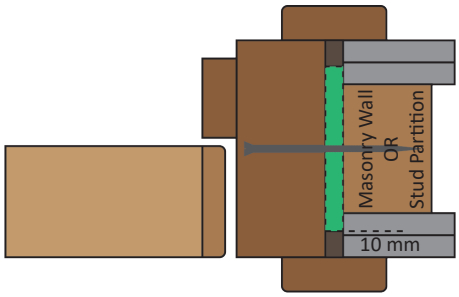
For timber stud partitions and masonry walls built without fair face, fire rated doorsets may be fitted to prepared openings without the use of additional intumescent materials where the gap between the frame and the surrounding structure is less than 10 mm and where architrave, that is not less than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

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



Installation gaps up to 10 mm - 30 & 60 minute integrity

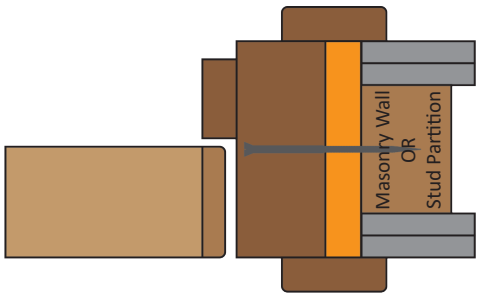
For installation gaps up to 10 mm where other details do not satisfy the previous stated requirements the gaps must be sealed on both sides of the frame with an acrylic intumescent mastic to a minimum depth of 10 mm



Installation gaps 10 - 15 mm - 30 & 60 minute integrity

For installation gaps 10 - 15mm the gap between the back of the frame and the surrounding structure must be tightly packed with mineral fibre between fixing positions

The gaps must also be sealed on both sides of the frame with an acrylic intumescent mastic to a minimum depth of 10 mm



Installation gaps 15 - 20 mm - 30 & 60 minute integrity

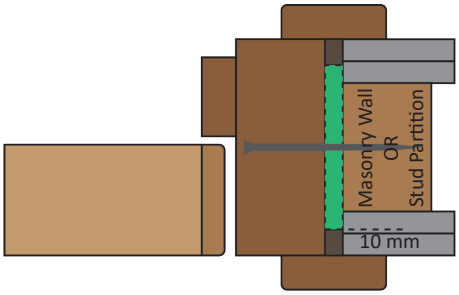
For installation gaps of 15 - 20 mm the preferred method is to adjust the opening by the use of timber grounds. However gaps between the back of the frame and the surrounding structure may be filled with a proprietary fire stopping product between fixing positions (e.g. expanding PU foam or preformed compressible intumescent foam.

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

Note: ***Acrylic intumescent mastics, expanding PU foam or performed compressible intumescent foam used for this purpose must have been satisfactorily tested for this application to the requirements of BS 476 Pt22: 1987 or BES EN 1634-1: 2000 or 2008***

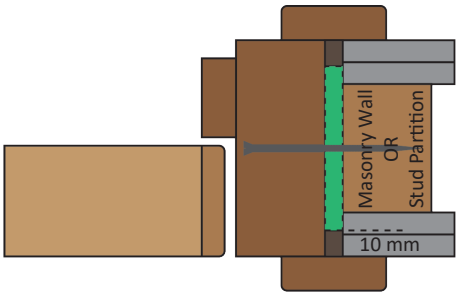
Drawings are representative of doorset installation only

Lewis Aldridge Joinery is able to recommend the use of ST99 fire foam, in conjunction with ST88 intumescent mastic, for 30 minute (FD30) and 60 minute (FD60) integrity doorsets for gaps of up to 20 mm. This is in accordance with Warrington Fire Report WF419831, BS 476: Part 22: 1987. A copy of this field of application report is available upon request.



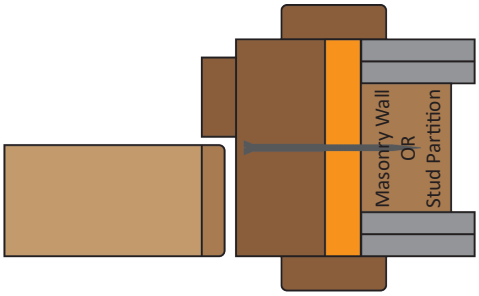
Installation gaps up to 10 mm - 90 minute integrity

Gaps up to 10 mm must be tightly packed with mineral fibre, capped on both sides with 15 mm depth of acrylic intumescent mastic. Products must be tested for this application to BS 476: Part 22:1987 or BS EN 1634-1



Installation gaps 10 - 15 mm - 90 minute integrity

Gaps up to 15 mm must be filled with expanding PU foam and sealed on both sides with a 10 mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. (A 10 x 10 mm shadow gap may be used with this detail providing the PU foam and mastic fire stopping materials were tested without architraves and at the required width and depth).

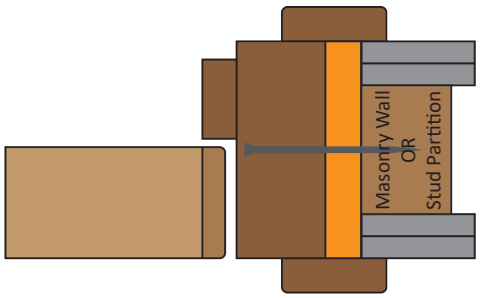


Installation gaps 15 - 20 mm - 90 minute integrity

Gaps up to 20 mm must be filled with non-combustible sub-frame up to 20 mm thick, with any gaps between the components sealed with acrylic intumescent mastic. Products must have been tested to BS 476: Part 22: 1987 or BS EN 1643-1.

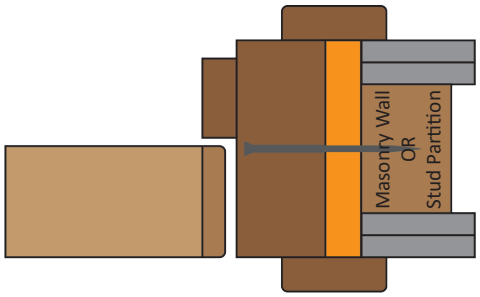
Note: ***Acrylic intumescent mastics, expanding PU foam or performed compressible intumescent foam used for this purpose must have been satisfactorily tested for this application to the requirements of BS 476 Pt22: 1987 or BES EN 1634-1: 2000 or 2008***

Drawings are representative of doorset installation only



Method 1 Fire Foam

Gaps up to 20 mm may be filled with tested fire rated foam such as Fire & Acoustic Fire Door Foam or STS ST99 foam successfully tested for 120 minutes, and once set, 10 mm deep scraped out of the foam to allow 10 mm depth capping of Fire 7 Acoustic Intumescent Acrylic Sealant or ST88 mastic, both successfully tested for 120 minutes applied over the foam on both faces. Architraves are not required. This design was tested in rport CFR1911291 with a timber frame and plastic packers. This fire stopping detail has been successfully tested for 120 minutes in fire resistance integrity in report CFR1911291



Method 2 Mineral Fibre

Gaps up to 15 mm may be tightly packed with mineral fibre, capped on both sides with a 15 mm depth of acrylic intumescent mastic. Products must be tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. An MDF architrave measuring 45 wide x 18 mm thick must be used. This fire stopping detail has been successfully tested for 120 minutes in fire resistance integrity in report BMT/FEP/F15069A

6.2.7 Concealment of fixing

Dress exposed fixings of door frames, doorstops and architraves as specified.

Note:

1. This operation and final fitting of architraves should be left until all adjustments to gaps and door leaf operation have been made.
2. Screws are normally concealed with timber or plastic pellets. Pins are punched and filled with hard bees wax coloured to match.

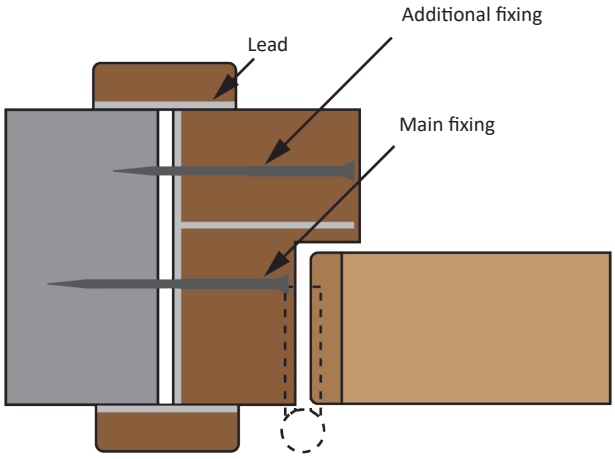
6.2.8 Cleaning

Remove all dust, clean the installed door and make good any damage to finishes according to instructions provided by the manufacturer.

6.2.9 Installing lead lined doors

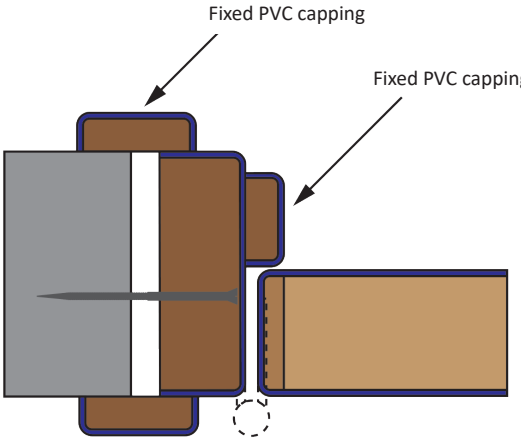
Main fixing of the frame must always be through the rebate section of the frame to establish a secure fixing to take the door weight

Additional fixing of the frame may be gained through the stop section of the frame, NEVER SOLELY FIX THE FRAME AT THIS POINT



6.2.10 Installing Postformed / encapsulated doors

PVC encapsulated frames can be supplied in a number of ways to allow different fixing methods for the stops and architraves

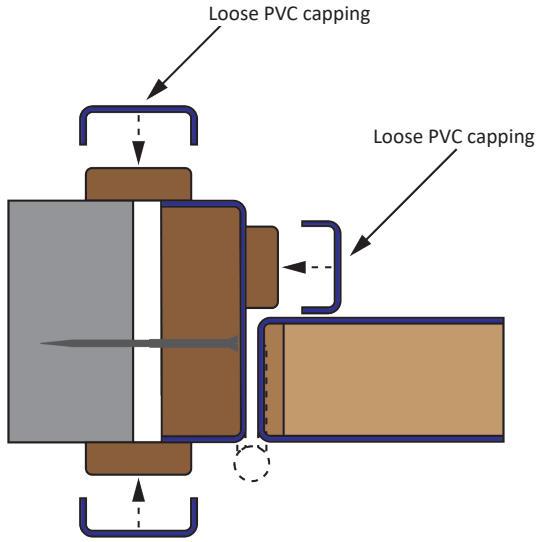


Fixed capping

Loose stops and architraves are supplied with fixed caps, either pinning or screwing into place.
An appropriate adhesive can be applied to hold in place and silicone can be used to seal joints.

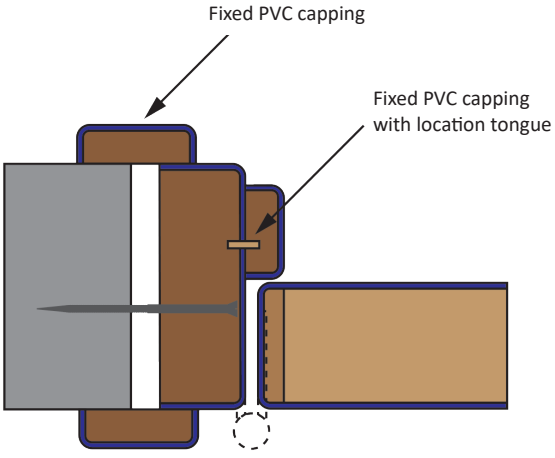
When pinning care must be taken not to split the PVC case. Coloured fillers can be used to cover the pin heads.

If screwing into place, 10 mm caps can be supplied.



Loose capping

Loose stops and architraves are supplied with loose caps, either pinning or screwing the timber into place before fixing the covers to conceal the fixings. An appropriate adhesive can be applied to hold in place and silicone can be used to seal joints.



Fixed capping with location tongue

Loose stops and architraves are supplied with fixed caps. An appropriate adhesive can be applied to hold in place and silicone can be used to seal joints. Additional grab can be achieved by using pins below PVC surface and covered over with a coloured filler.

When pinning care must be taken not to split the PVC case.

6.2.11 Hardware installation

General:
Strebord is a GDC (graduated density chipboard) product providing for universal screw fixing without the necessity to provide for additional timber blocking with the exception of provision for additional timber blocking to receive load bearing double and single action pivot fixings.

It is recommended that hardware fitted to GDC core doors is fixed using fully threaded 'Twinfast' or chipboard screws. The recommended screw size for load bearing items is Min. 38 mm No 8 fixing screws. Pilot holes should be drilled to receive fixings.

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

- Reference should be made to BS8214 : 2008 Code of Practice for Fire Door Assemblies with non-metallic leaves.
- Reference should be made to the 'Hardware for Timber Fire Escape Doors' Code of Practice published by the DHF Door and Hardware Federation) and the GAI (Guild of Architectural Ironmongers)

Fire Door Applications:

Note: For 'product assured' items, the fixing instructions provided by the hardware manufacturer should be strictly adhered to and these instructions take precedence over BS8214 and Code of Practice general recommendations in the event of any conflict

Wood based fire 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 and 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)*.

Solid wood based doors provide for very good insulation performances with a potential to provide for an insulation performance equal to the integrity

Hardware installation c'td

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 the non fire face of the door.
Under BS476 Pt.20 fire test conditions the pressure 'normal' in the furnace occurs at (approx) 1000 mm above floor level. Areas of door above the normal are subjected to increasing positive pressure for 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 and latches, should be positioned below the 'normal' where possible.
Note: The pressure normal is lowered to 500 mm above floor level for testing to BS EN 1634-1

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 may be unsuitable for this purpose due to 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. Low pressure intumescent is available in sheet form *(often pre cut dedicated gaskets to suit particular items of hardware).*
Note: The remaining text making reference to 'Intumescent Gaskets' include for sheet material and mastic.

With the vast array of hardware components available to enhance the performance and aesthetics of any doorset, Lewis Aldridge cannot cover all associated parts. We can however recommend the following is always considered PRIOR to proceeding with any installation and or fixing of associated parts

- Ironmongery falls into two specific categories - essential and non essential.
- Essential ironmongery is required to enable the door to perform its fire resisting function.
- Non essential ironmongery may be needed to enable other functions to be achieved, but the elements involved MAY impede fire resistance.
- It is therefore VITALLY IMPORTANT to consider the influence that all ironmongery may have on fire resistance and establish that products being used or considered are compliant.
- Care should be taken to ensure that, when installing ironmongery with the use of battery powered tools, the correct torque settings are applied to the tools to minimise the risk of over-tightening or spinning of screw fixings.
- Pilot holes should be drilled when fixing ironmongery to particleboard cores

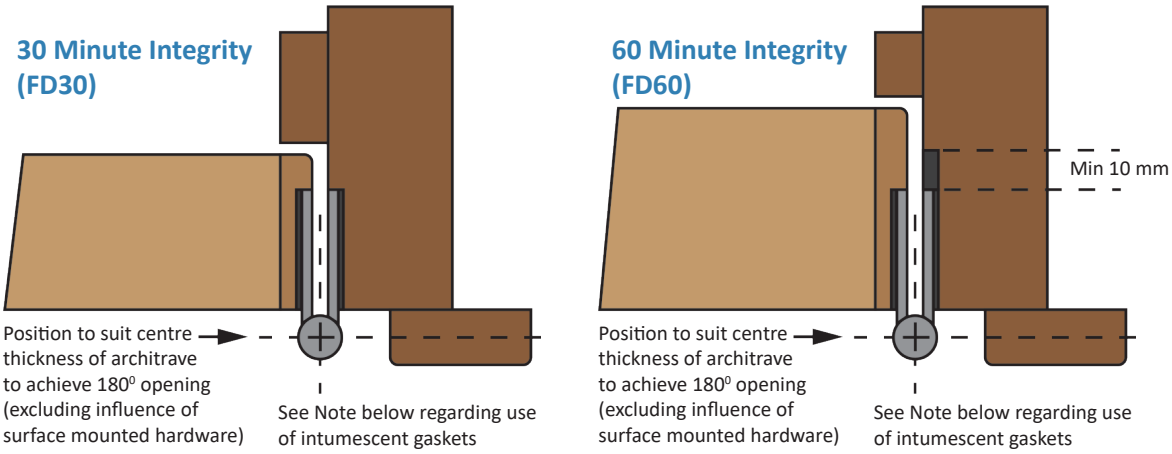
6.2.12 Hinges

Hinges must be able to support loads imposed by the door leaf and hardware functions such as self-closing and back check. Consult the hardware supplier if necessary

Use 3 hinges per door leaf for all fire doors or when above 1000 mm in width unless otherwise specified.

When door leaves exceed 2200 mm in height or 160 kg, consult the hardware supplier. One or more additional hinges may be required.

The addition of certain door closers increases the 'effective' weight of the door leaf. Hardware should be taken into account when working out the weight.



Notes

1. ***In addition to the information contained in the table on the following page, the hinges should provide for the appropriate BS EN 1935:2002 performance according to the door weight and anticipated usage.***
2. ***The hinge knuckle centre should be set as near to the door face as possible to minimise the 'door growth' during operation.***
3. ***A hinge knuckle centre at the centre of the architrave thickness will allow for 180⁰ opening (excluding the influence of other surface mounted hardware).***
4. ***Pilot holes should be drilled to receive hinge fixing screws with hinges fixed to the door leaf using minimum 38 mm No. 8 fully threaded 'twinfast' or course threaded chipboard screws for solid particleboard cores and 30 mm No 8 or No 10 steel wood screws for solid laminated wood cores.***
5. ***30 Minute Integrity (FD30): Intumescent gaskets are not required for use under hinge blades for door leaf heights less than 2670 mm. Lewis Aldridge will always prep for them as standard when prepping for hinges. For panelled effect doors intumescent gaskets are required under both blades for leaf heights over 2440 mm***
6. ***60 Minute Integrity (FD60): For door leaf heights less than 2285 mm intumescent gaskets are not required for use under the hinge blades provided that the hinge design permits a minimum of 10 mm of the intumescent seal to run uninterrupted past the hinge blade. Lewis Aldridge will always prep for them as standard when prepping for hinges. For panelled effect doors intumescent gaskets are required under both blades for leaf on all configurations***

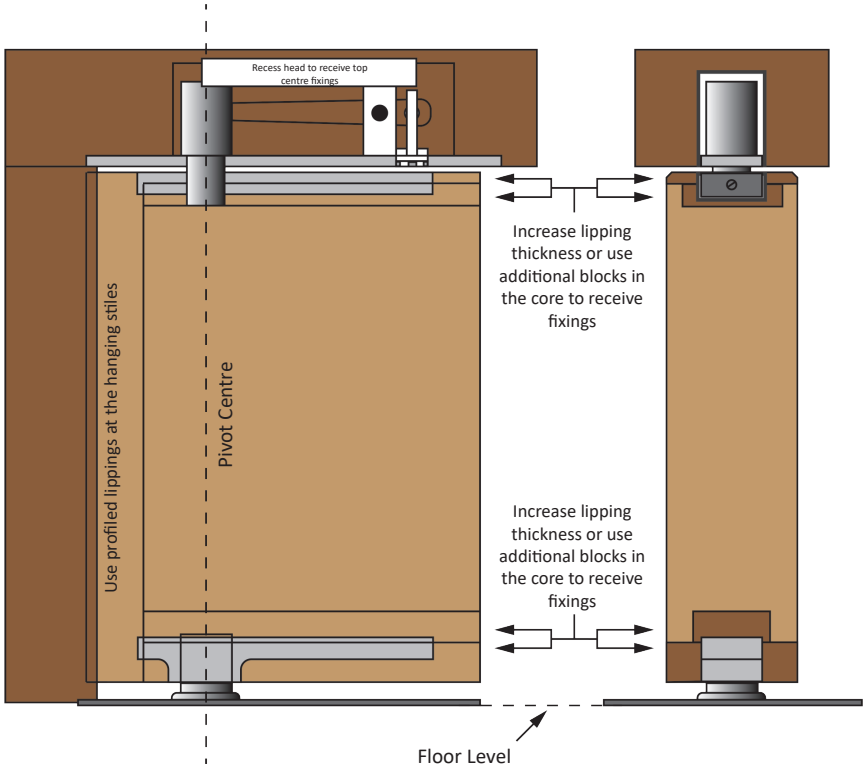
Particleboard (Chipboard) Cores - Solid

Particleboard Cores	30 Minute Integrity (FD30)	60 Minute Integrity (FD60)
Blade Height	90 - 120 mm	90 - 120 mm
Blade Width (excluding knuckle)	30 - 35 mm	30 - 35 mm
Fixings	Min. 4 No. 38 mm long No 8 fully threaded 'Twinfast' or chipboard screws per hinge blade, core only	Min. 4 No. 38 mm long No 8 fully threaded 'Twinfast' or chipboard screws per hinge blade, core only
Materials	Steel or stainless steel	Steel or stainless steel
Intumescent Protection ***(see notes 5 & 6 on previous page)***	1 mm interdens or intumescent sheet	1 mm interdens or intumescent sheet
Hinge Positions: Leaf dimensions <2400 mm	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door
Hinge Positions: Leaf dimensions >2400 mm	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door

Laminated Wood Cores - Solid

Laminated Cores	30 Minute Integrity (FD30)	60 Minute Integrity (FD60)
Blade Height	90 - 120 mm	90 - 120 mm
Blade Width (excluding knuckle)	30 - 35 mm	30 - 35 mm
Fixings	Min. 4 No. 30 mm long No 8 or No 10 steel wood screws per hinge blade	Min. 4 No. 30 mm long No 8 or No 10 steel wood screws per hinge blade
Materials	Steel or stainless steel	Steel or stainless steel
Intumescent Protection ***(see notes 5 & 6 on previous page)***	1 mm interdens or intumescent sheet	1 mm interdens or intumescent sheet
Hinge Positions: Leaf dimensions <2400 mm	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: Min. 200 mm from top hinge to central hinge between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door
Hinge Positions: Leaf dimensions >2400 mm	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door	Top: 150 - 180 mm from top of door. Centre: 2 No. equispaced between top and bottom hinge. Bottom: 180 - 250 mm from bottom of door

6.2.13 Floor mounted closers - double action pivots - 30 & 60 minute integrity



Automatic closing devices must have demonstrated contribution to the required performance of similar wood based types of doorset design when tested to BS 476 Pt.22 : 1987 or BS EN 1634-1 : 200 or 2008 with wood doors

The top pivots to floor spring assemblies must be protected with intumescent gaskets as described for hinges but in 2 mm thickness. Alternatively, a dedicated intumescent pack provided by the floorspring supplier may be used.

Hanging stile lippings must be profiled (to suit centre pivot). Use of top and bottom edge double lippings to receive pivot fixings is recommended.
Note: alternatively additional hardwood blocking may be used in the pivot location positions to provide for improved fixing of the load bearing elements.

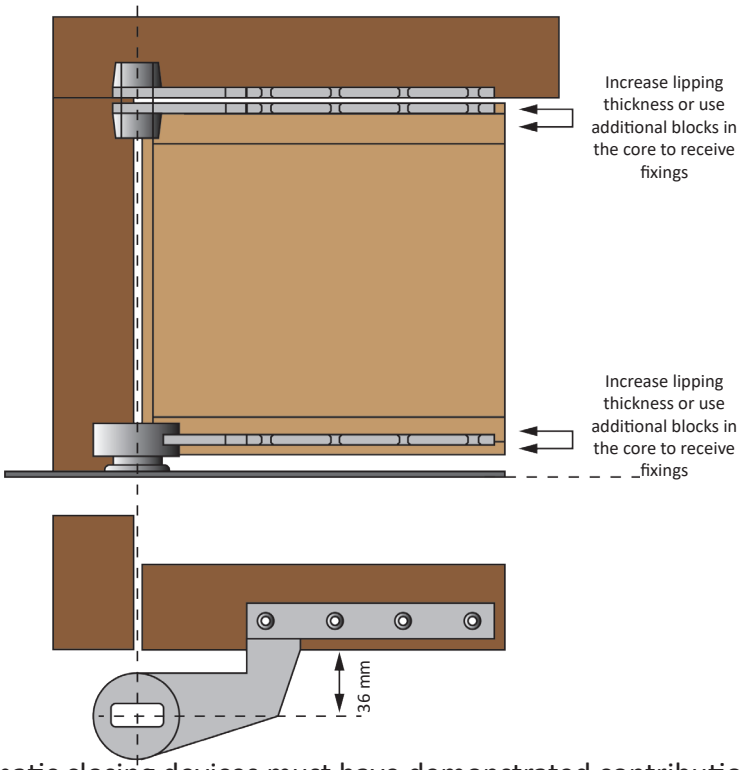
Pilot holes should be drilled to receive screw fixings. Min 38 mm No. 8 fully threaded @Twinfast' or course threaded chipboard screws should be used for fixing in GDC cores.

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

Note: Transom mounted double action closers are not approved for Q-Mark applications but may be used in reliance upon test / assessment data provided 'by others'

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.14 Floor mounted closers - single action pivots - 30 & 60 minute integrity



Automatic closing devices must have demonstrated contribution to the required performance of similar wood based types of doorset design when tested to BS 476 Pt.22 : 1987 or BS EN 1634-1 : 200 or 2008 with wood doors

The top pivots to floor spring assemblies must be protected with intumescent gaskets as described for hinges but in 2 mm thickness. Alternatively a dedicated intumescent pack provided by the floorspring supplier may be used.

Use of top and bottom edge double lippings to receive pivot fixings is recommended.
Note: alternatively additional hardwood blocking may be used in the pivot location positions to provide for improved fixing of the load bearing elements.

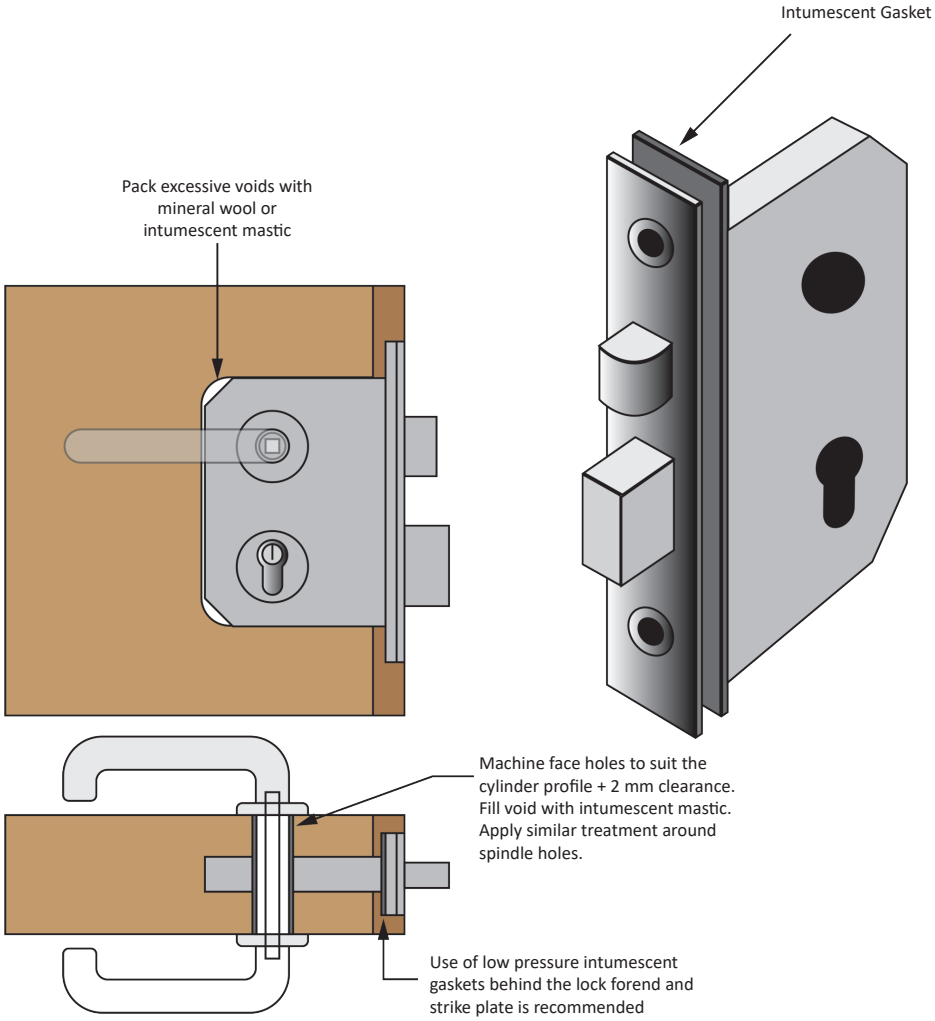
Pilot holes should be drilled to receive screw fixings. Min 38 mm No. 8 fully threaded 'Twinfast' or course threaded chipboard screws should be used for fixing in GDC cores.

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

Warning: 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 or thick doors.

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.15 Locks and latches - 30 & 60 minute integrity

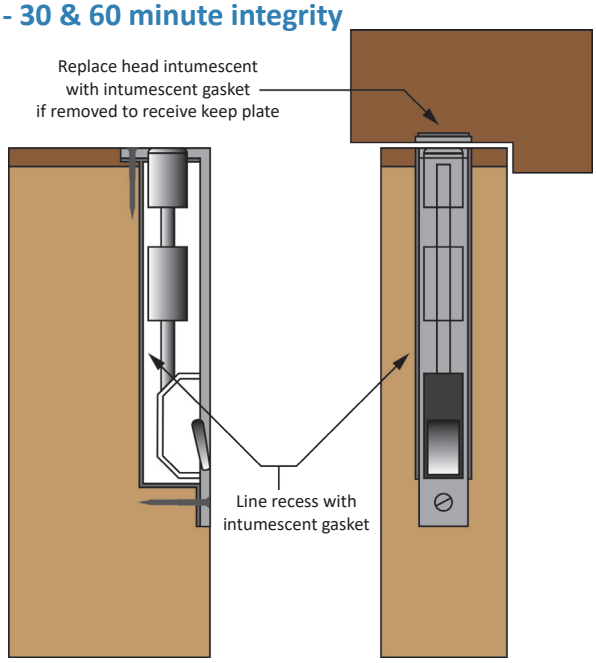


Locks and latches must be either as tested, alternatively components with the following specifications are acceptable:

	30 Minute Integrity (FD30)	60 Minute Integrity (FD60)
Maximum forend & strike plate dimension	235 mm high by 25 mm wide by 4 mm thick	235 mm high by 25 mm wide by 4 mm thick
Maximum body dimensions	18 mm thick by 100 mm wide by 165 mm high	18 mm thick by 100 mm wide by 165 mm high
Intumescent protection **Under forend & keep plates for double doorsets (pairs) only**	1 mm Interdens 1 mm MAP paper 1 mm Pyrostrip 1 mm Therm-A-Strip	1 mm Interdens 1 mm MAP paper 1 mm Pyrostrip 1 mm Therm-A-Strip
Materials	All parts essential to the locking / latching action (including the latch bolt, forend and strike) to be steel or brass	All parts essential to the locking / latching action (including the latch bolt, forend and strike) to be steel or brass

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.16 Flush bolts - 30 & 60 minute integrity



Bolts may be required to secure the secondary leaf of pairs. 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

Edge fixed flush bolts are approved for door applications subject to the following:

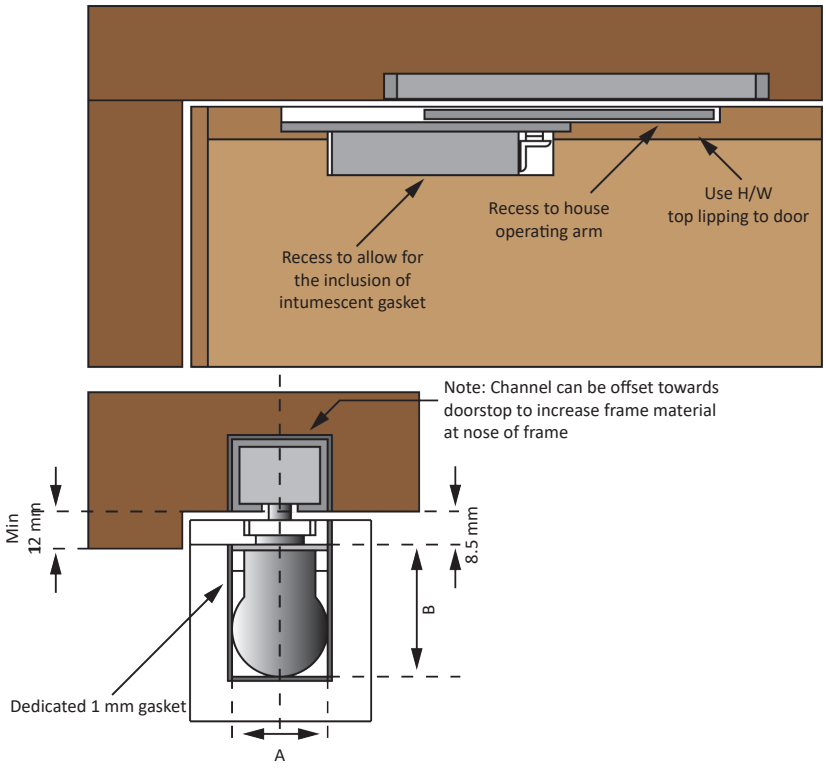
Flush bolts may be incorporated into the top and bottom of the meeting edge of the inactive (or secondary) leaf of a double leaf doorset (pair), provided that the following maximum dimensions are not exceeded:
Length = 205 mm
Depth = 20 mm
Width = 20 mm
Flush bolts may be in steel or brass

The mortice to receive the 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 using:
2 mm Interdens
2 mm MAP paper
2 mm Therm-A-Strip
2 mm Pyrostrip

Flush bolts must be centrally fitted to the door leaf and opposite to the edge fitted with the intumescent seals

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.17 Door closers - Automatic closing - 30 & 60 minute integrity



Automatic closing devices e.g. Single Action Overhead Closers, must either be tested or components of equal specification that have demonstrated contribution to the required performance of these types of doorset designs when tested to BS476 Pt.22 : 1987 or BS EN 1634-1 : 2000 or 2008.

Note: Concealed closers
Some concealed closer designs have been successfully tested for fire door applications in wood doors and may be used with various core doors in reliance upon that test data. However, these do require the removal of a large amount of core material to house the closer and its dedicated intumescent pack leaving minimal thickness door material either side of the mortise.

It is recommended what these are used with minimum 50 mm thickness doors to minimise the risk of 'telegraphing' of the mortise on the face of the door and a risk of mechanical failure at the mortise position.

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

Concealed door closers are not approved for use with any panelled effect door design due to the amount of material being removed for panel insertion and to integrate the closer
Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.18 Pull handles - 30 & 60 minute integrity

Pull handles may be surface fixed to doors provided that they are steel or brass and the length is limited to 1,200 mm between 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.

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.19 Push, buffer and kick plates - 30 & 60 minute integrity

Face fixed only push, buffer and kick plates may be fitted generally to doors for fire door applications provided that their fitting does not require the removal of any part of the door core. These items of hardware are permitted up to a maximum of 20% of the door leaf area when screw fixed or 30% of the door leaf area when fixed with a contact or thermally softening adhesive, or 10% on panelled effect doors.

For 30 minute integrity (FD30) applications only, maximum 2 mm thickness kick and push plates may be recessed flush with the face of the core subject to the following:
Kick Plates: Max approved kick plate dimension = 250 mm high fitted on either one or both sides at the bottom of each leaf.
Push Plates: Max approved dimensions = 300 x 160 mm.
Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.20 Door selectors - 30 & 60 minute integrity

Door selectors may be freely applied for use with doors generally provided that they are not invasive in the door leaf edges or the door frame. T
hose 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

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.21 Panic hardware - 30 & 60 minute integrity

Panic hardware may be used generally with 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, door stop or frame reveal. Further, the panic hardware must not, in any way, interfere with the self-closing action of the fire doors.

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.22 Door viewers - 30 & 60 minute integrity

Door security viewers may be generally used with doors provided that the viewers are manufactured from brass or steel with viewer bodies of a diameter of 15 mm (or less) and provided that the through-hole is bored tight to the case of the viewer with a maximum tolerance of + 1 mm.
Lenses must be glass. Viewers must be bedded in intumescent mastic unless otherwise approved for use without additional intumescent by reference to fire test / assessment data relating to the particular viewer design when tested on wood doors.

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.23 Acoustic, weather and dust perimeter seals - 30 & 60 minute integrity

Acoustic, weather and dust seals with a proven flame retardant performance may be fitted generally to doorsets provided that the fitting of the seals does not interfere with the activation of the doorset intumescent seals or hinder self closing function of the door leaves.

6.2.24 Automatic threshold seals - 30 & 60 minute integrity

Fully mortised automatic threshold drop seals may generally be fitted to doorsets provided that the body of the automatic drop seal does not exceed 35 mm high x 15 mm wide (excluding fixing flanges). The body of the automatic drop seal must be in metal, aluminium or steel and the device is to be mortised centre thickness of the door.

Alternatively, surface mounted automatic drop seals may be used where the fitting of these does not require the removal of any core material.

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.25 Air transfer grilles - 30 & 60 minute integrity (excludes panelled effect doors)

Air transfer grilles may generally be fitted to doorsets for FD30 and FD60 applications provided that the particular grille design is supported by fire test evidence to BS476 Pt.22 : 1987 or BS EN 1634-1 : 2000 or 2008 that demonstrates an integrity performance that is at least equal to the desired performance of the doorset when installed in a wood door leaf of a compatible thickness.

Margins for apertures to receive grilles are to be as described for glazing with the grille 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 design provides for alternative locations in a wood based door.

Grilles must be fitted precisely in accordance with the grille manufacturers test / assessment data, including all hardwood lining, intumescent seals, fixings, etc as required for the relevant fire performance.

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

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.26 Letter plates / boxes - 30 & 60 minute integrity

Letter plates (boxes) may generally be fitted to doorsets for FD30 and FD60 applications provided that the particular letter plate (box) design is supported by fire test evidence to BS476 Pt.22 : 1987 or BS EN 1634-1 : 2000 or 2008 that demonstrates an integrity in performance that is at least equal to the desired fire performance of the doorset when installed in a wood door of a compatible thickness.

Margins to the leaf edges must not be less than the margins approved for glazing.

Letter plates (boxes) must be located towards the bottom of the door (i.e. not more than 1200 mm above the threshold level) unless the fire test / assessment data relating to the particular letter plate (box) provides for alternative locations in a wood based door.

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.27 Cable ways for electric locks / strike plates - 30 & 60 minute integrity

Cableways to provide for a route for the connection of electric locks / strikes with the command units are generally permitted for use subject to the following:

- Door leaf dimensions must not exceed 2100 x 900 mm and not be a panelled effect door
- The particular device must be supported by fire test evidence to demonstrate suitability for use in timber based doors to the required fire performance.
- The device must be fitted precisely in accordance with the manufacturers test / assessment data, including intumescent seals, fixings, etc as required for the relevant fire performance
- The cable ways must be located to provide for a minimum margin of 90 mm from any aperture in the door leaf
- The cable way may be concealed as follows: A 10 mm (max) diameter hole drilled centrally in the door thickness and horizontally across the width of the door at a height of not more than 1500 mm above finished floor level and lined with a 2 mm thick intumescent gasket
- Cable must be no more than 2 mm smaller in diameter than the hole prepared and PVC encased.

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

6.2.28 Safehinge 30 & 60 minute integrity

Safehinge Alumax 30 and Alumax 60 provide for a door hanging pivot system with design features that minimises the risk of injury due to finger entrapment at the hanging stiles.

At the closing stile, the face of the doorstop can be fitted with the Norsound 'Fingersafe' compressible gasket that provides for a similar injury reduction function.

Being a pivot system, the 'Safehinge' can be used with both single action and double action doors, but with opening limited to slightly more than 90^0

Note 1: Safehinge Alumax 30 has been approved for a number of 44 mm particleboard core door and laminate core door applications. Reference should be made to the full assessment before using this product with fire rated doorsets

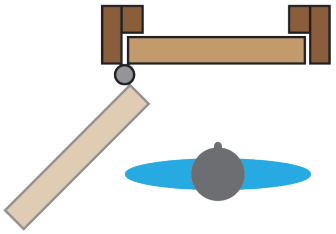
Note 2: Safehinge Alumax 60 has been approved for a number of 54 mm particleboard core door and laminate core door applications. Reference should be made to the full assessment before using this product with fire rated doorsets

Note: Specific information should be requested from the manufacturer when fitting to fire doors.

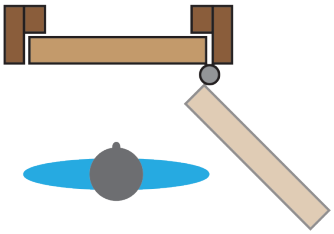
7. Handing

There are a number of handing standards in the joinery and ironmongery industries . Lewis Aldridge has adopted the following as its standard. Please ensure that any information supplied to Lewis Aldridge complies with this standard.

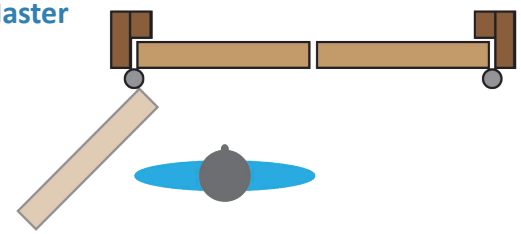
Single
Left Hand



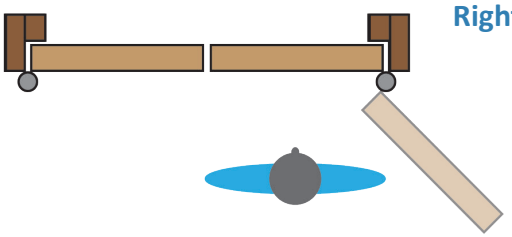
Single
Right Hand



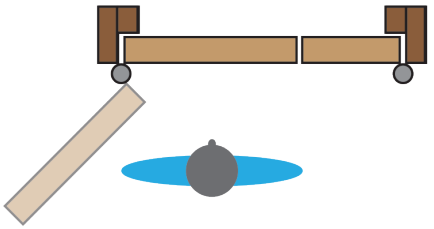
Equal Pair
Left Hand Master



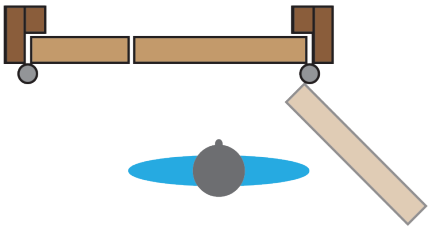
Equal Pair
Right Hand Master



Un-Equal Pair
Left Hand Master



Un-Equal Pair
Right Hand Master



INSTALLATION MANUAL - Fire Rated Doorsets

REVISION E - JANUARY 2024

Lewis Aldridge

For sales and technical enquiries call 01922 455 513