FIRE DOOR INSTALLATION & MAINTENANCE REQUIREMENTS

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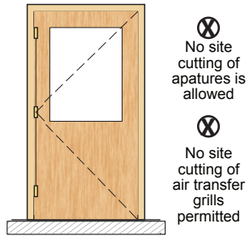
ROLE AND USE OF FIRE DOORS
Fire doors are required to provide two main functions; To maintain any compartmentation of building, which has been introduced to limit the size and spread of fire in order to control the perceived risk. To allow access to protected escape routes, both vertically and horizontally without any loss of fire resistance and limit smoke movement in the structure forming these routes e.g. protected corridors, lobbies, stairways and shafts.

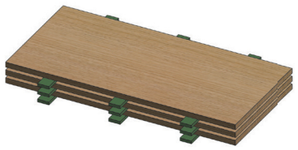
The details provided within this instruction document refer to recommended minimum requirements for fire rated finished door leaves and doorsets for installation as supplied by DFL Fitout + Joinery Ltd. The door leaves and doorsets supplied have been tested to the latest edition of BS 476: Part 22, and/or BS EN 1634-1 in addition to being independently certified as achieving fire resistance up to 30, 60, 90 and 120 minutes to the fire rating specification, when installed in accordance with the following conditions.

DOORSET MODIFICATION
- **No Modifications permitted to factory manufactured doorsets**
- **No Modifications Permitted to Glazing**



STORAGE
Fire door leafs and doorsets are joinery components and as such, their handling and storage prior to installation should be such that they are protected from rain, sun and splashing by corrosive or staining materials and preferably stored in a well-ventilated building. Door leaves and doorsets that are clear lacquered or varnished should be subject to storage that protects them from being unevenly exposed to sunlight.

In addition, door leaves and doorsets must also be protected from exposure to excessive moisture and stored horizontally on 3 or more equally spaced bearers, away from ground floor level. As is applicable, it is also recommended that any wrappings be left in place for as long as possible.



SUITABILITY OF STRUCTURAL OPENING
It is the installer's responsibility to ensure that structures to receive fire doorsets comply with National and Local Regulations and that they are suitable for the design performance.
Note: Installers are recommended to refer to the applicable parts of the latest edition of BS 5588 Fire Precautions in the Design and Construction of Buildings for further guidance. In addition reference to BS 8214:2016 with regards to sealing between timber based door frames and supporting construction, as appropriate for the fire performance required.

The fire test/data applicable to Doorsets manufactured by DFL Fitout + Joinery Ltd. anticipates that they will be fitted into block, wood, brickwork, concrete, timber or metal stud partitioning, unless the partitioning manufacturer (as applicable) can provide fire test/assessment data to demonstrate that this is not necessary. Where doorsets are to be fitted into metal stud partitioning, the hollow metal stud at the doorset position should be filled with softwood solid packer (being continuous for the full doorset height/width) between the opening in the support structure and the rear face of the frame member of the doorset. The finished partition thickness should not be less than the thickness of the door frame.

INTUMESCENT MASTIC
Option1:(30 and 60 minute fire resisting timber doors only) As shown in the tables in BS 8214:2016 clause 9.4.1
The specification for mastic must be as given in clause 9.4.2 in BS 8214: 2016, summarised below:
- Test evidence for the mastic must be to one of the following standards: BS 476 part 20, BS EN 1366-4, BS 476 part 22 or BS EN 1634-1. The test evidence can be for the mastic between any materials.
- Supporting test evidence must be for the required period of fire resistance or greater.
- Length of tested seal must be at least 1m, but this does not restrict its use in an application for a fire door of larger length.

Option2:(All door types e.g. timber, steel, composite) As documented in the doorset or intumescent mastic manufacturer's supporting test evidence or assessment report. For installation methods not covered by the details contained in the tables in clause 9.4.1 in BS 8214: 2016 (i.e. option 1 above), or for fire resisting applications in excess of 60 minutes, it is permitted to use the guidance given in the supporting door manufacturer's test evidence/ assessment document or an assessment that has been produced for the mastic manufacturer. The details given in the relevant assessment for the use of mastic with fire resisting doors must be precisely followed and the test evidence and/or assessment must be to BS 476: Part 22 or BS EN 1634-1.
Note: The mastic must be suitable for the application on site, meeting the requirements of either Option 1 or Option 2 above. A list of approved mastics for installing their doorsets is available on the company website **www.fitouts.ie**

FIRE FOAM
Expanding foam: This is not recommended to be used due to the variability of the installation and the more complex understanding of whether the test evidence is suitable for use. However, where there is test evidence to EN 1366 part 4, BS 476 part 22, BS 476 part 20 or EN 1364-1, with the test duration being at least the same or higher than the integrity period of the fire doorset being fitted, then expanding foam may be used.

Option1:(30 minute fire resisting timber doors only) Use as documented in the tables in BS 8214:2016 clause 9.4.1
The specification for fire foam must be as given in clause 9.4.2 in BS 8214: 2016, summarised below:
- Test evidence for the foam must be to one of the following standards: BS 476 part 20, BS EN 1366-4, BS 476 part 22 or BS EN 1634-1. The test evidence can be for the mastic foam between any materials.
- Test evidence must have used a minimum gap width of 20mm and a maximum fully filled depth of 100mm.
- Test evidence must have been carried out with no mastic capping or architraves.

Option2:(All door types e.g. timber, steel and composite, with 30 minutes fire resistance and above). Use as documented in doorset or foam manufacturer's supporting test evidence or assessment report.

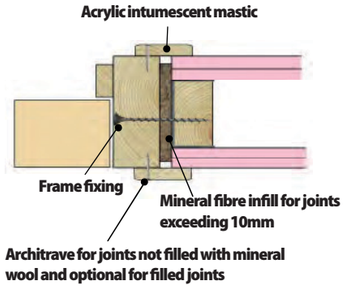
For installation details not covered by the details contained in the tables in clause 9.4.1 in BS 8214: 2016 (i.e. option 1 above), it is permitted to use the guidance given in the supporting door manufacturer's assessment report or an assessment that has been produced for the foam manufacturer. The details given in the relevant assessment for the use of foam with fire resisting doorsets must be precisely followed and the test evidence and/or assessment must be to BS 476: Part 22 or BS EN 1634-1. Supporting test evidence must have been generated at a UKAS accredited laboratory and the assessment must have been written by Warringtonfire. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.
Note: The foam must be suitable for the application on site, meeting the requirements of either Option 1 or Option 2 above, a list of approved foams for installing their doorsets is available on the company website **www.fitouts.ie**

MINERAL ROCK FIBRE PACKING
Option1:(30 and 60 minute fire resisting timber doors only) As shown in the tables in BS 8214:2016 clause 9.4.1
The specification for mineral rock fibre packing must be as given below:
- Must be a fibre that is manufactured using rock fibre. Glass wool and other types of mineral fibres are not acceptable.
- All other details must be as per the specification given in the tables in section 9.4.1 in BS 8214: 2016 (e.g. maximum permitted gap size, intumescent mastic and architrave requirements).
- Mineral fibre/ceramic fibre: Euroclass A1 or A2 to EN 13501-1 and heat resistant to at least 1000°c.

Option2:(All door types e.g. timber, steel, composite and 30 minutes fire resistance and above) Use as documented in doorset manufacturer's supporting test evidence or assessment report.
For installation details not covered by the details contained in the tables in clause 9.4.1 in BS 8214: 2016 (i.e. option 1 above), it is permitted to use the guidance given in the supporting doorset manufacturer's assessment report. The details given in the relevant assessment for the use of mineral rock fibre with fire resisting doors must be precisely followed and the assessment must be to BS 476: Part 22 or BS EN 1634-1. Supporting assessments must have been written by Warringtonfire. Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.
Note: The mineral rock fibre must be suitable for the application on site, meeting the requirements above. A list of approved mineral rock fibres supplier and test evidence/assessment report for installing the doorsets is available on the company website **www.fitouts.ie**

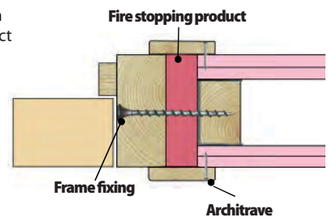
The door frame to structural opening gap must be protected using one of the following methods:

1. Gaps up to 10mm must be sealed on both sides with a 10mm capping depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 20 or EN 1366-4. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.

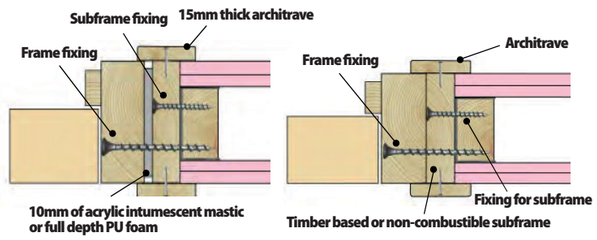


2. Gaps between 10mm and 20mm must be tightly packed with mineral fibre capped on both sides with a 10mm capping depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 20 or EN 1366-4. Architraves are optional.

3. Gaps up to 20mm filled with proprietary fire stopping product (e.g. expanding PU foam or preformed compressible intumescent foam). Products must be successfully tested for this application to BS 476: Part 20 or EN 1366-4. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.



4. Timber based or non-combustible sub-frame up to 50mm thick, with no gaps between the components. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.

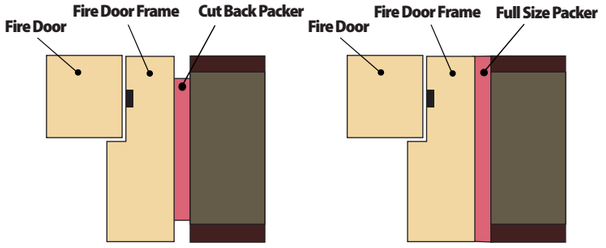


Note: For Flamebreak FD60s Foors & Frames, Timber architrave of a minimum of 18mm thick must be fitted to both faces, fitted with a minimum of 15mm overlap to the door gap.

PACKERS (For timber, PVC-U or composite doorset construction only)
a) Plastic packers may be used but only for 30min resistant doorsets and only if cut back 10mm and capped with appropriate intumescent mastic.
b) Softwood packers can be used for 30min fire resistance period only. These do not need to be cut back or capped with intumescent mastic.
c) Hardwood packers can be used for up to 60min re resistance period. These do not need to be cut back or capped with intumescent mastic
d) Packers made from non-combustible or limited combustibility material (e.g. calcium silicate board or plasterboard) can be used for any fire resistance period. These do not need to be cut back or capped with intumescent mastic.

It is permitted to use alternative packer arrangements and materials providing they are directly supported for use with the type of doorset being installed (e.g. timber, steel or composite). Supporting evidence must be test evidence generated at a UKAS accredited laboratory to BS 476: Part 22: 1987 or BS EN 1634-1 for the required period of fire resistance.
Assessments for the different packer materials and arrangements are acceptable providing they have been written by Warringtonfire. Other assessments may be acceptable nut must be submitted to BM TRADA for review and approval prior to use

PACKER TYPES



TIMBER ARCHITRAVES
Timber architraves must be fitted unless there is test evidence, an assessment report or detail in 9.4.1 of BS 8214:2016 for alternative materials or for a sealing solution between the back of frame and supporting structure that does not require an architrave to be fitted. Test evidence must be generated at a UKAS accredited laboratory to BS 476: Part 22: 1987 or BS EN 1634-1 for at least the period of fire resistance required. Assessments must be from Warringtonfire and to BS 476: Part 22: 1987 or BS EN 1634-1.
Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.

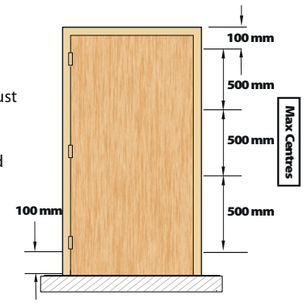
Option1: For 30 and 60 minute fire resisting timber doors the following architrave specification is suitable for use with the details given in section 9.4.1, where required in BS 8214: 2016: Architraves to be minimum 15mm thick constructed from softwood, hardwood or MDF with 15mm overlap on both the frame and wall/supporting structure.

Option2: For details outside of the specification given in section 9.4.1 in BS 8214: 2016 and for non-timber doorsets or doorsets with fire resistance in excess of 60 minutes, the details given in the relevant assessment for the door design must be followed. The assessment must be written by Warringtonfire and be to BS 476: Part 22: 1987 or BS EN 1634-1.
Other assessments may be acceptable but must be submitted to BM TRADA for review and approval prior to use.

With gaps up to 10mm between the components filled on both sides with 10mm capping depth of acrylic intumescent mastic or full depth expanding PU foam, fire tested for this application to BS 476: Part 20 or EN 1366-4.
Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side. Guidance for various methods of sealing the frame to structural opening gap is also given in BS 8214: 2016 Timber-Based Fire Door Assemblies - Code of Practice, which may be referred to where appropriate.
-based doors that have been successfully tested to BS 476-22 or EN 1634-1 are acceptable for use.
Materials Required: Acrylic IntumescentMastic (A2 Grade) Mineral Fibre (A1 Grade) or ExpandedPolyurethane Foam with fire retardant.

FIXING/TRIMMING

The Frame jambs are to be fixed to the supporting construction using steel fixings. It is not necessary to fix the frame head, although packers must be inserted. However, fixings are recommended as detailed below provided deflection is not considered to be an issue.
Fixings must be of the appropriate type and length for the structural opening and provide a solid fixing for normal day to day use.



Fire Door Type	Max distance between centres (mm)	Fixings to frame head (mm)	Min. depth of penetration into substrate
FD30	500	1	50 mm
FD60	500	1	50 mm

To comply with Building Regulations, doorsets or door assemblies must be installed in accordance with BS 8214:2016 Timber-based fire door assemblies - Code of practice.

TRIMMING OF DOOR EDGES

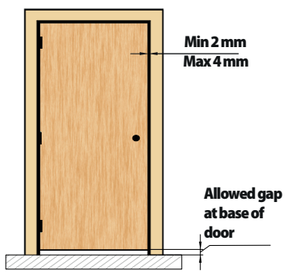
Fire Door Type	Halspan Instructions
FD30	Timber can be reduced in thickness by 20 % for fitting purpose
FD60	Timber can be reduced in thickness by 20 % for fitting purpose

HANGING A DOOR LEAF

When hanging door leaves **without** door frames, the frame material must comply with the recommendations as set out in the latest revision of the BS 8214 Timber-Based Fire Door Assemblies - Code of Practice. Frame materials for FD30 doorsets **can be** hardwood or softwood with a density > 510 kg/m cubed @ 15% moisture content. Frames for FD60 doorsets must be hardwood with a density > 640 kg/m Cubed @ 15% moisture content.

Frames must be square and manufactured with traditional joints with the appropriate size wood screws (Joints may be glued and screwed together), all joints must be a good fit, during the installation process a consistent gap of 3 mm (+/- 1mm) must be maintained between the head and both door frame sides, the maximum allowed gap at the threshold must be < or = 10mm.

The allowed gap for double doors, between the frame and the door and the meeting styles must be < or = 3mm. All fire doors must be fitted with intumescent fire seals or intumescent fire and smoke seals.



FOA Specified Threshold Gap	Max Height (mm)
FD30 Prima - FEA/F97174 Part 1	10
FD30 Prima/Optima panelled. FEA/F97174 Part 3	10
All other FD30+FD60, Fields of application Halspan + Falcon	8

GLAZED APERTURES

Glazing is important for fire doors because of the need, under regulatory requirements for safe access, requiring a clear vision from one side of the door to the other, this typically includes one or more glazed panels in the doors of an appropriate area and of a suitable height and position for all possible users. Failure to comply with Installation instructions will invalidate the fire door certification. Following inspection, if glazing intumescent/glazing/beading is damaged, contact **quality@fitouts.ie** to ensure compliance with field of application requirements with due regard regards to fire door regulations. The glazing process must be completed within DFL Fitout + Joinery Ltd.

IRONMONGERY

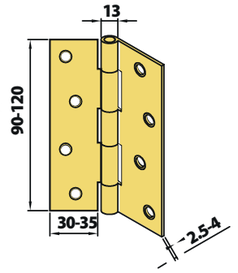
Important: Selection of hardware/ironmongery for fitting to fire doorsets supplied by DFL Fitout + Joinery Ltd., must be as defined by the current Field of application documents for doorset type supplied (customer specific as per quotation and production order). Where any deviation or uncertainty arises for hardware or ironmongery for use with individual doorsets, contact **quality@fitouts.ie** for verification of compliance of hardware/ironmongery with specification, suitability for use and availability of relevant test data. Following the fitting of ironmongery it is essential to verify that such items function correctly in use. Hardware/Ironmongery for example, hinges, closures, locks and latches are required to be fitted with **low pressure intumescent seals or strips.**

- Fitted beneath the hinge blades on the leaf and frames for FD60.
- In fire doors and/or frames.
- Fitted between the latch body and fire door.
- Fitted under the latch fore end and under the latch keep in the fire door.
- Use of intumescent gaskets supplied with door closures.
- Use of intumescent between fire door and frame.

All intumescents/glazing systems/fire glass and Ironmongery must comply with guidelines/type as set out in the relevant field of applications/ test data documents. Deviations from specific criteria will invalidate the fire certification.

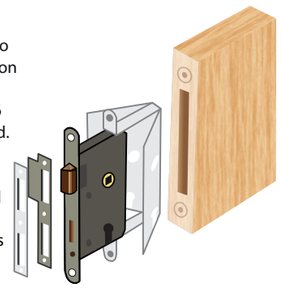
HINGES AND SCREWS

Alternative hinges must be CE marked to EN1935 and have current CF Certification or can be a tested item in the field of application, made to EN1634-1 or BS476 part 22. Blade height 90-120mm. Blade width (excluding knuckle) 30-35mm, Blade thickness 2.5–4mm, min No.8 screws per hinge, min 30mm long No. 8 or No.10 steel wood screws. 1mm interdens or graphite intumescent behind hinge blades. Hinge Material Steel, Stainless or Brass
(= or > 800oc).



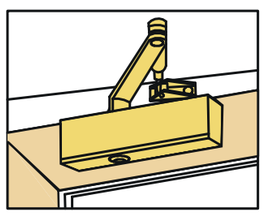
LATCHES AND IMAGES FD30 / FD60

Alternative latches must be CE marked to EN12209 and have current CF Certification or can be a tested item in the field of application, made to EN1634-1 or BS476 part 22. Latch is optional if closer is fitted. All parts essential to latching/locking action (including latch bolt forend & strike) to be steel. Lock case, forend and keep to be protected by 1mm graphite interdens (or 2 mm Lorient Polyproducts MAP) and in compliance with global assessment requirements. For support information contact **quality@fitouts.ie**



CLOSERS

Alternative door closers must be CE marked to EN1155 and have current CF Certification or can be a tested item in the field of application, made to EN1634-1 or BS476 part 22. Except where doors are kept locked shut (such as service active devices). Mechanical hold-open devices are not permitted. For support information contact **quality@fitouts.ie**



OVER PANELS

Over panels must be fixed through the rear of the door frame with steel woodscrews passing at least 30mm into the over panel. Fixings are to be spaced at a maximum of 250mm centres and no more than 100mm from each corner.

FIRE DOOR MAINTENANCE

Fire Doors are required to provide the level and duration of fire resistance as per the structural/design of the buildings integrity. As fire doors are opened and closed many times a day, it is necessary that the door leaves, door frames, hardware, glazing and intumescent seals are examined for damage due to use, structural damage or excessive bowing or deformation, by a competent person.
The frequency of inspection must match the use cycle of the fire door. In addition the nature of building's use must be taken into account. For example high risk buildings, such as hospitals, schools and retirement homes may require inspections once per month or on the other end of the scale low risk buildings may require inspections every six months.

Items requiring inspections; Gap between the door leaf and the frame and the meeting of styles on double doors must be < 3mm (+/- 1mm).
Signs of damage to glass or glazing system needing to be replaced, all glazers used should be certified by a third party registration scheme for fire rated glass installation.
Such schemes are put in place to ensure the glazing process maintains the required product conformity. In order to comply with the test data for the doorset, with regards to glass identification, glass supplier and type of glass used.
Check fire and smoke seals (where fitted) for signs of damage, degradation or missing in part or in total, all of which can seriously affect the ability of the door assembly to perform its fire resistance function. Where a seal is missing in part or total the entire length should be replaced with one of the same dimension, formulation and configuration as the one being replaced.
Hinges should be inspected for signs of wear and any worn hinges replaced with those that perform in accordance with latest edition of BS EN 1935 and should also have corrosive test evidence in accordance with BS EN 1760.
Ensure that (where fitted) the latch or lock furniture moves freely and engages fully. Damaged or badly worn lock or latch furniture should be replaced immediately. Self-closing devices must be examined to ensure it closes the door leaf properly. The door should close effectively from any angle. Any self-closing devices (where fitted) which are unable to be effectively adjusted, should be replaced using a closure that has been validated by test for use on a door assembly of similar specification and performs in accordance with the latest edition of BS EN 1154.
As it is difficult to repair fire doors and maintain the interactive behavior of the various component parts, DFL Fitout + Joinery Ltd. instruct that where significant damage is detected, fire door leaves must be replaced in total.

Note: In the event of damage that necessitates the replacement of one leaf of a double door, both leaves should be replaced with a new matching pair. Possible future changes to legislation may make it impossible to ensure that a single leaf would be of identical construction to that being removed.

FIRE DOOR DECORATION

The Halspan Global Assessment allows the use of decorative door surfaces with laminates, wood veneer or pre-primed paper as the fire door leaves are not required to provide a surface spread of flame barrier. For combined intumescent and smoke seal doors, the smoke specific seals must not be over painted, over painting of intumescent seals is permitted to a maximum of coats.
Use of heat or chemicals in preparation for recoating, where intumescent seals are incorporated into the door design, should be avoided to prevent damage to such seals. Certified fire doors supplied by DFL Fitout + Joinery Ltd. are permanently marked with a declared fire resistance period by means of colour coding plug(s). It is therefore advised to avoid painting over the plugs during decoration/painting on site.

MARKING
Qmark Plugs

A plug marking system is used to identify the fire door status. Standard plug location is shown. Each door can have up to 4 plugs fitted, 25mm apart below the location of the top most hinge. The hinge is a distance of 180mm (max) from the top edge of the door.

FIRE DOOR CERTIFICATION SCHEME

DFL FITOUTS & JOINERY

Fire Door Certification Scheme

043
Outer colour - period of fire integrity.
Inner/tree colour - status of manufacture.
Unique certified company's number.

Outer colour - Period of fire integrity (mins)	30	60	90	120
	(Yellow)	(Blue)	(Brown)	(Black)

Inner/Tree colour

(Red) Approved door leaf and/or frame* (FD30 & FD60 only). Intumescent strips not supplied.
(Orange) Approved factory fitted glazing.
(Green) Approved door leaf and/or frame* (FD30 & FD60 only). Intumescent strips prepared for & supplied.
(Silver) Complete certified factory hung doorset.
(Gold) Certified installation of a complete factory hung doorset.

*Where the frame and leaf are produced by separate Q-Mark companies, both the frame and leaf must have their own red/green plug.

For Additional Information visit **www.fitouts.ie**
Select Fire Doors and open, "Qmark plug Selections + Location".

COMPLETE DOORSET

The Doorset is fitted with the appropriate outer plug or plugs to the door leaf or door frame. There will be no further preparation work carried out to either the leaf or frame before it can be fitted into the building. It is permissible for hardware such as locks, hinges or door closers etc. to be finally fitted during the installation process, but the preparations to accept the hardware will have been completed by DFL Fitout + Joinery Ltd.
The hardware along with the supply of any required intumescent protection materials must be supplied by the Q-Mark certified fire door manufacturer. Clear instructions for further processing and installation of the doorset must be supplied by DFL Fitout + Joinery Ltd. relating to a specific Initial Type Test or Global Assessment within their scope of certification. The final assembly and installation of the doorset should be able to be completed with simple tools only, such as a screwdriver. No further preparations are allowed to be completed by the installer other than appropriate pilot holes for screws etc.