Fire Door Installation

Standards Clarification

Installation and Certification of Fire Resistant Doorsets to Australian Standard 1905.1: 2015

All fire door installations must comply with all relevant sections of the aforementioned standard, in particular - *Clearances Around Door Leaves*; to enable certification.

All companies and individuals engaged in fire door installation, should ensure they are familiar with, and their installation complies with, the requirement of this standard.

Spence Doors Management

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RESPONSIBILITIES OF OTHER TRADES

The Installation of Fire Resistant Door Frames

Greater attention should be paid to building works that may not be considered as an important part of fire protection.

The Australian Standard applies to a ***fire-resistant doorset***, this includes the door frame.

Poor practice's and carelessness could cause fire resistance to be compromised or require costly rectification, indirectly increasing the cost of fire protection to the industry.

1. The frame shall be backfilled to meet the requirements of AS1530.4

- *AS1530.4 requires the measurement of temperature rise on the fire door frame as well as the fire door itself when subject to the standard fire door test. Consequently, the frame needs to be insulated to ensure it meets the temperature rise requirements*

- *Backfilling options include: Pyropanel M4 mortar or standard mortar, Pyropanel FR board, Plasterboard strips, cornice adhesive/plater with or without plasterboard.*

2. The frame shall be installed into an approved fire rated wall system.

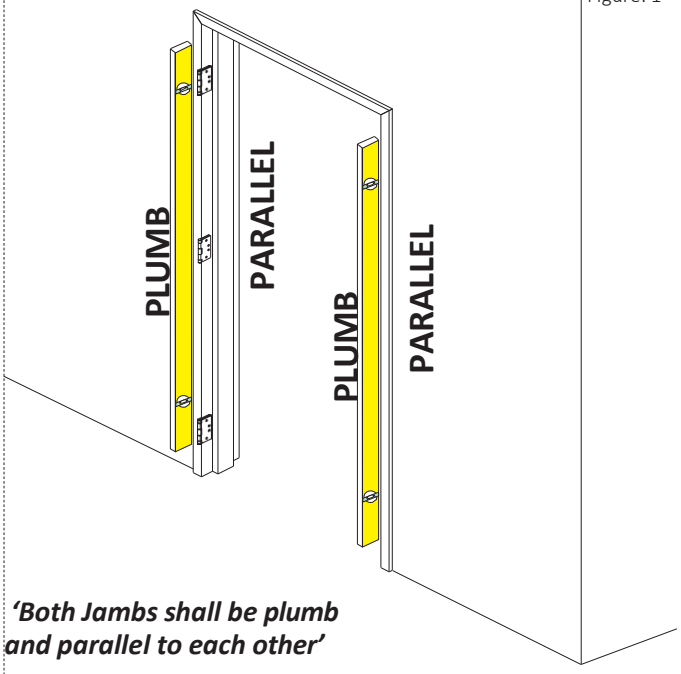
- *Follow the frame back filling requirements*
- *Follow the installation instructions*
- *Follow the tested specimen fixing requirements*
- *Ensure your frame installer understands their responsibility*

3. The frame jambs shall be installed plumb and parallel, the head of the frame shall be level and Square. (Figure:2)

4. The frame shall be ínwind'. (Figure:1)

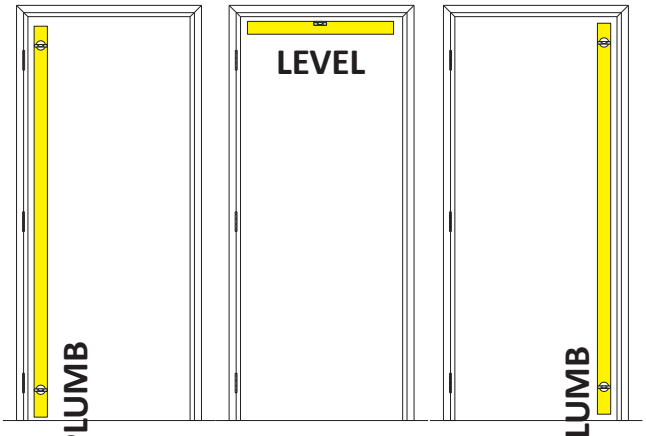
- *Any frame that is out of wind is likely to compromise the fire door installation and may render the fire doorset non-compliant*
- *Sight the frame through to make sure it is in wind. This is done by sighting one edge of the door frame through to the opposite edge. As you look through, let you eye wander from top to bottom and check the frame jambs are parallel*

Figure: 1



'Both Jambs shall be plumb and parallel to each other'

Figure: 2



'The frame jambs shall be installed plumb and parallel, the head of the frame shall be level and Square'. IN ALL WALL TYPES.

AUSTRALIAN STANDARD 1905.1: 2015
SECTION 2 DESIGN REQUIREMENTS

C2.1.1 *The essential components of a fire-resistant doorset are the door leaves, **frame**, hinges, latches and closers. These are the minimum components required to make a fire-resistant doorset that is functional, capable of testing in accordance with AS 1530.4 and capable of meeting the requirements of this Standard.*
The design criterion for all components of the fire-resistant doorset (whether they are essential or not) is to not adversely affect the fire resistance (i.e. FRL performance) of the fire-rated wall that they are installed in. Therefore, any component added or substituted to a fire-resistant doorset should be of materials and construction capable of maintaining or enhancing the fire performance of the doorset.

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RESPONSIBILITIES OF OTHER TRADES

The Non-Combustible Threshold Around and Under a Fire Resistant Doorset

Greater attention should be paid to building works that may not be considered as an important part of fire protection.
Poor practices and carelessness could cause the fire resistance to be compromised or require costly rectification, indirectly increasing the cost of fire protection to the industry.

The Non-Combustible Threshold Under a Fire Resistant Doorset

1. The floor surface, either the non-combustible threshold or the floor covering shall be sufficiently flat and level so when a fire resistant doorset is installed, it can operate unhindered and with a compliant clearance when in the closed position.

2. Lifting and levelling the top of fire rated door frames may leave a large gap under the door and frame Jamb.

- *Consider the fire resistance required to be compliant*
- *Level the floor to enable compliance*

3. Any excessive hollows or bumps in the floor that could compromise the fire resistant doorset installation shall be rectified before certification.

- *Level the floor between jambs*
- *Level the hollow in the floor*
- *Rectify the bump in the floor*

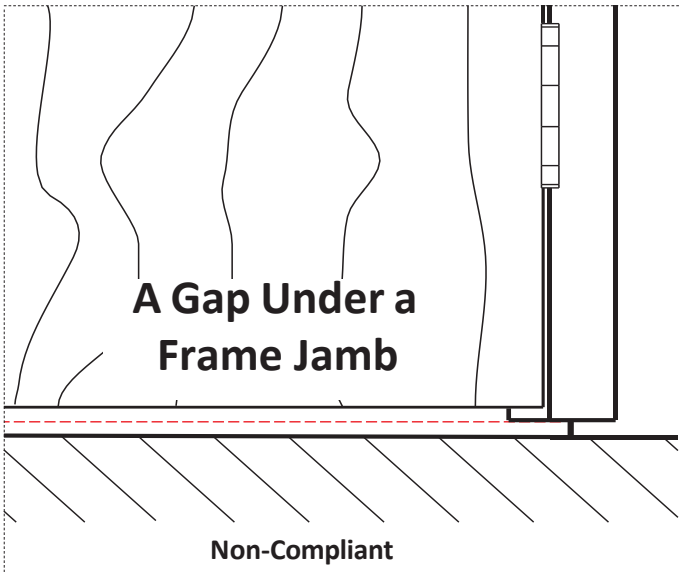
AUSTRALIAN STANDARD 1905.1: 2015 Requires:

Section 5 INSTALLATION:
Clause 5.5.1 Threshold and floor finish

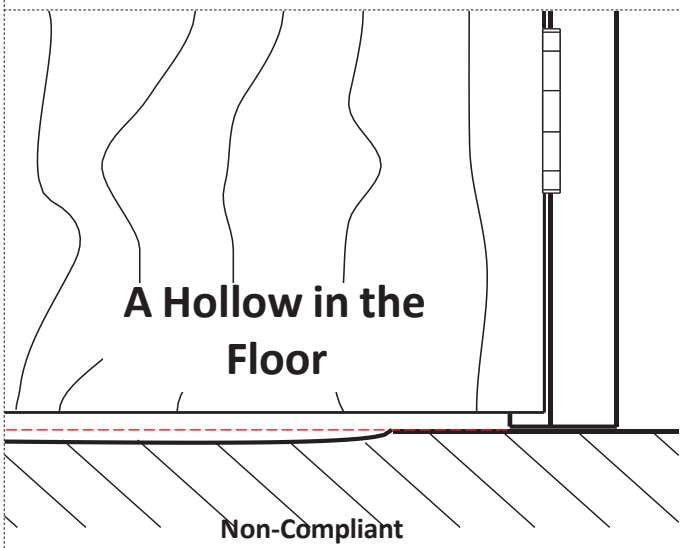
Clearances between the bottom of all door leaves and the floor shall be as follows:

(a) Between the leaf and the top surface of the floor including any floor covering—not less than 3 mm and not more than 10 mm.
(b) Between the leaf and the top of the non-combustible threshold—not more than 25 mm.

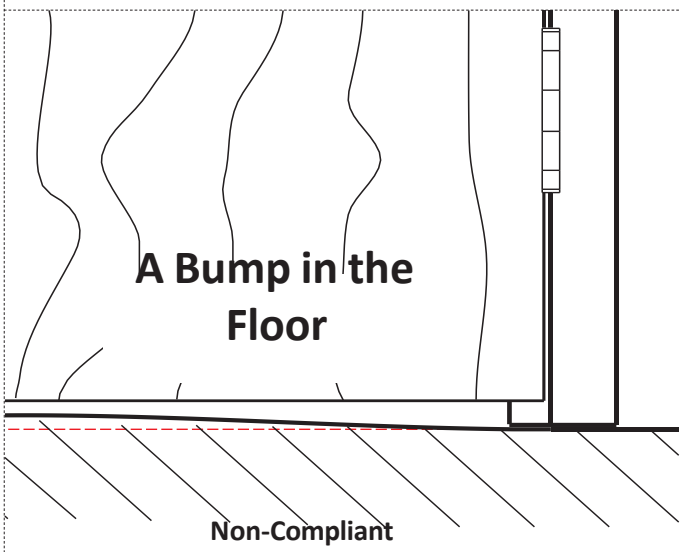
NOTE: When the installed doorset is inspected for compliance with Item (b), the clearance should not exceed 25 mm for the purpose of certification unless a note providing information on clearances is made in the evidence of compliance.



Non-Compliant



Non-Compliant



Non-Compliant

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RESPONSIBILITIES OF OTHER TRADES

The Non-Combustible Threshold Around and Under a Fire Resistant Doorset

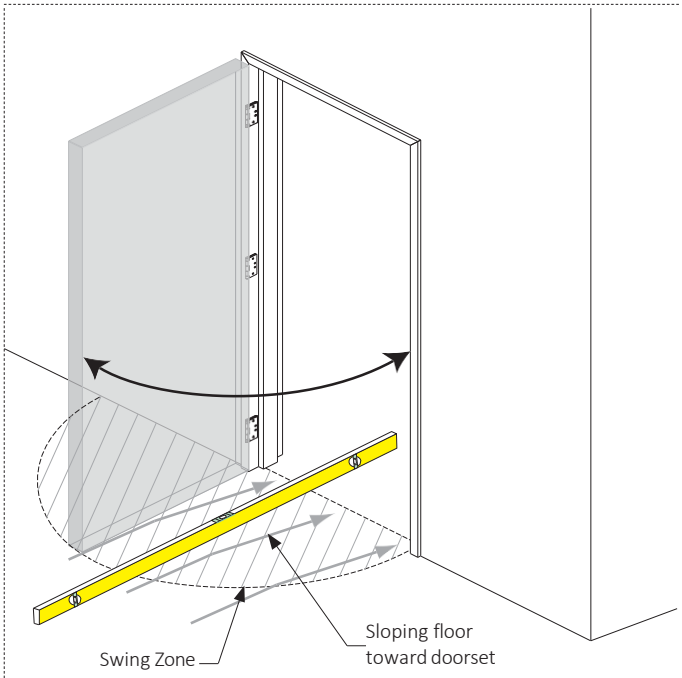
The Non-Combustible Threshold and floor finish within the door swing zone.

1. The floor surface, either the non-combustible threshold or the floor covering shall be sufficiently flat and level so when a fire resistant doorset is in operation it can operate unhindered without binding on any part of the floor within the door swing zone.

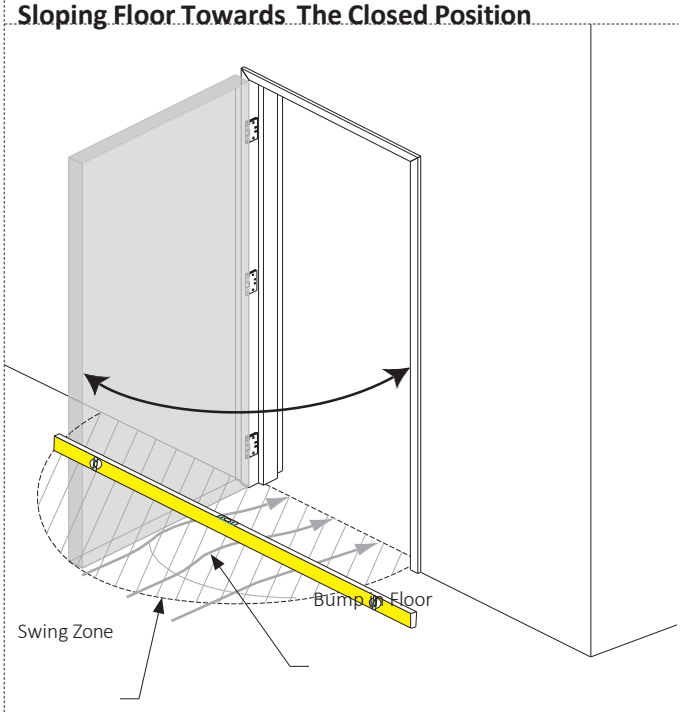
- *Check for any bump or rise in the floor*
- *Check for any slope in the floor*
- *Uneven floors should be rectified by the trade responsible*

2. Trimming the bottom of the door leaf to accommodate uneven floors could render the fire door non-compliant when in the closed position.

- *Determine your options before you proceed*



Sloping Floor Towards The Closed Position



Bump in Floor Within The Door Swing Zone

'Poor practices and carelessness could cause the fire resistance to be compromised or require costly rectification, indirectly increasing the cost of fire

protection to the industry'

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RESPONSIBILITIES OF OTHER TRADES

Greater attention must be paid to poor practices and carelessness that could cause the fire resistance to be compromised or require costly rectification, indirectly increasing the cost of fire protection to the industry.

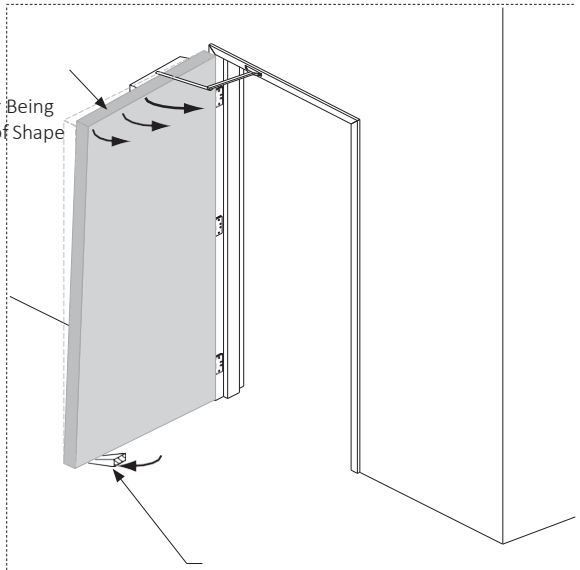
The wedging open of a fire doors with the door closer installed will cause damage to the fire door. The damage in some cases cannot be rectified and the door will need to be replaced.

- *Think about the protection of other trades works*
- *Ensure everyone understands what damage could be caused*
- *The cost of replacing the door will need to be paid for by YOU.*
- *Use sand bags to hold open the door rather than wedges.*

Hardware

All fore door hardware must be tested to the required fire rating on each proprietary brand of fire door. If in doubt, check with Spence doors. Fire doors must be self closing and self latching, Therefore any item that prevents this function is not approved.

Wedging Open a Fire Door



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FIRE DOOR INSTALLATION

Installation Instruction

This Technical Bulletin describes the installation method to be used by door installers when installing Pyro-Panel Fire Doors. This information is to be used as instruction for fire door installers.

PRE-INSTALLATION

1. Check that all hardware and fixings are on hand and compliant.
2. Ensure the latest revision of the door schedule is being used and the door is correct for the opening.
3. Measure your reveal height and width to check if the doors will fit into the opening.
4. Check if the frame is installed correctly and its installation will not cause the fire door to be non-compliant.
5. Check hinges are well secured and there is sufficient quantity.

DOOR INSTALLATION

6. The Door Manufacturer's marking will identify the hinge and lock side (*marked top hinge together with pilot hole identifier)*. Mark the doors on the top face hinge side. Mark 'top hinge corner'. For 2hr fire doors only.
   You can also confirm by using a magnet to locate the steel reinforcing for hinges and closer. (Photo's Figure:1.)
7. Open the hinges then place door leaf in the frame.
8. Scribe the door with a 2.5mm spacer.
9. Machine door to scribed marks and finish by planing a minimum 2mm splay or "Back edge".
   Back edge will ensure the closing door edge does not bind on the door frame. (Figure:2)
10. Use a sharp chisel or trimmer to cut the check out for the door hinges. Remove the hinges from the frame and drill 4mm pilot hole/ screw them onto the door. (Pyro-Panel approved fixings).
11. Turn door end on end and plane the lock side. The lock side will require a 2mm splay or "Back edge".
12. Sand edges and paint top and bottom of the door.
13. Hang the door onto the door frame and check door swing.
14. Fit the nominated door hardware as per the manufacturers installation instructions.
15. Installation clearances shall be as per AS1905.1.

Figure: 1

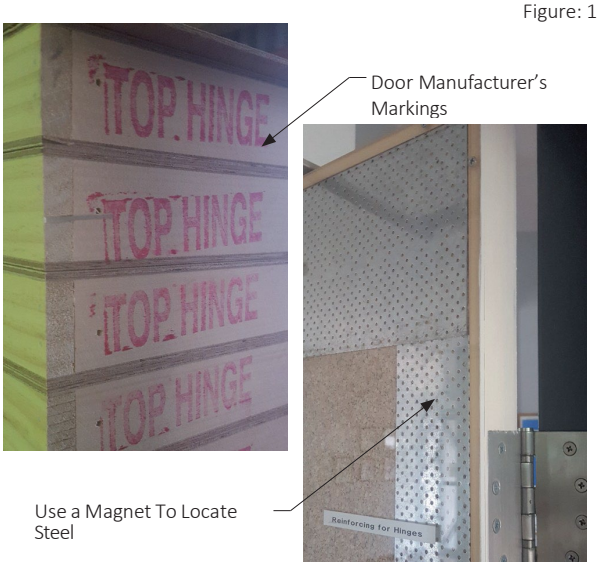
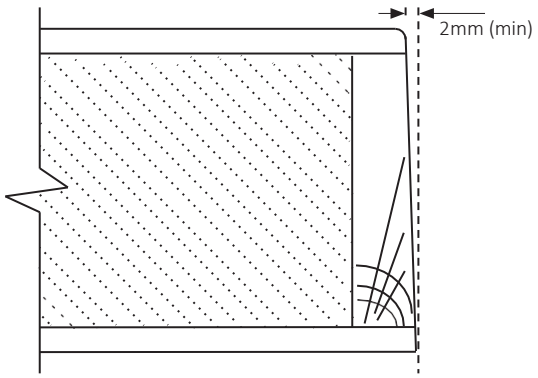


Figure: 2



Additional steps for pairs (doubles)

16. Repeat process for second leaf ensuring correct gap for meeting stile.
17. Fit the nominated door hardware as per the manufacturers installation instructions.
18. Ensure intumescent seals are secured into the groove within the aluminium meeting stiles.
19. Fit aluminium meeting stiles with 10 gauge self drilling screws.
20. Where required, insert and secure smoke seals to each door leaf meeting stile.

PYRO PANEL APPROVED FIXINGS

Hinges:	10 gauge x 50mm zinc plated steel or stainless steel CSK self tapping screws. (Minimum)
Door Closer:	10 gauge zinc plated steel or stainless steel pan head self tapping screws (min 30mm penetration into door).

Hardware attachment is referenced to in:
AS1905.1- Clause 5.6.1

NB: Wood screws not to be used.
NB: It is required to drill pilot holes - 4mm, to 50mm deep.

FINAL CHECK

When the installation is complete, the fire-resistant doorset shall latch satisfactorily from the fully open position and from any intermediate position, and the closers shall demonstrate satisfactorily back checking action as required by ***AS 1905.1–Clause 2.3.5***.

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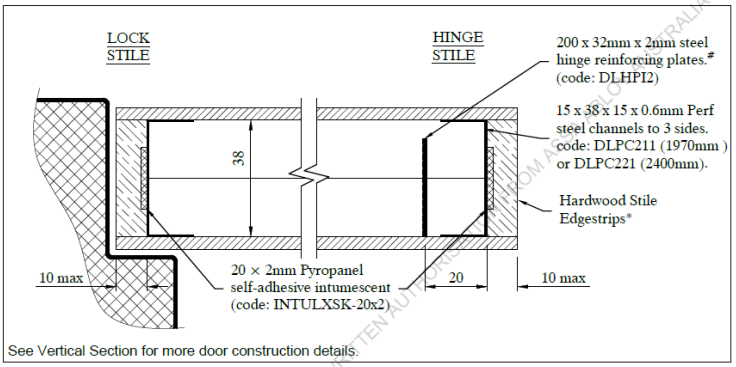
FIRE DOOR INSTALLATION

Trimming door leaf to suit frames

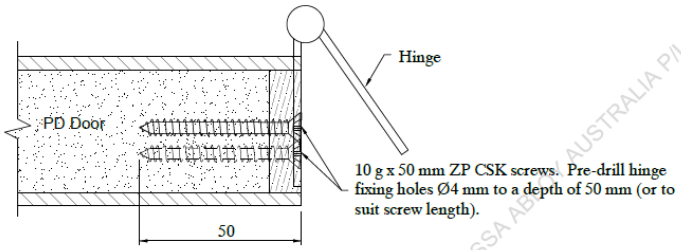
The stiles and rails in your fire door are not the same as non-fire doors. The stiles and rails are thin strips and are generally max 10mm thick. Their function is to accommodate an acceptable finish to the edge of the door to allow for hardware to be installed securely and enable trimming of the door. Where there is an intumescent strip fitted, this is a design requirement and should not be removed or modified.

Where trimming or planning of the door is necessary to fit into the frame, ensure equal are removed from each side. DO NOT trim or plane one side only. Excessive trimming or planning from one side only will reduce the strength of the door and possibly expose the core material and intrumesent strips which may affect the serviceability of the door and render the door non-compliant. See below image of typical location of intrumesent strips.



If excessive trimming of the door is required to a depth where the door stiles and rails cannot be serviceable, then a custom-made door is required.

HINGE INSTALLATION – 1 hour rated door - Pandoor



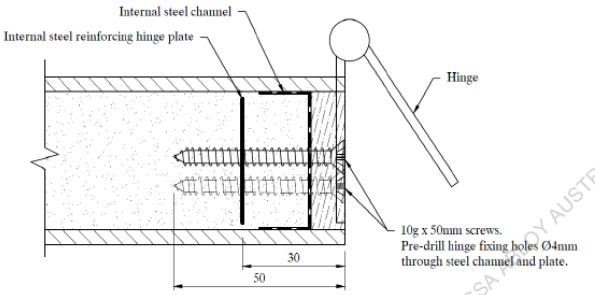
⚠ Hinge fixing screws must be 10 g x 50 mm (50 mm minimum).

⚠ Pre-drill hinge fixing screws Ø4 mm to a depth of 50 mm (or to suit screw length).

⚠ A minimum of 3 hinges is required for a fire doorset. We recommend a minimum of 1 door hinge per 18 kgs of door weight. A standard door with 4 mm MDF faces weighs approx. 22 kgs per square metre. Additional hinges should be positioned at top of leaf e.g. 2 hinges at top for a 4 hinge set.

HINGE INSTALLATION – 2 hour rated door

Hinge Installation - FR Board Doors



⚠ Hinge fixing screws must be 10 g x 50 mm (50 mm minimum).

⚠ Pre-drill hinge fixing screws Ø4 mm to a depth of 50 mm (or to suit screw length).

⚠ A minimum of 3 hinges is required for a fire doorset. We recommend a minimum of 1 door hinge per 20 kgs of door weight. A standard door with 4 mm MDF faces weighs approx. 22 kgs per square metre. Additional hinges should be positioned at top of leaf e.g. 2 hinges at top for a 4 hinge set.

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FIRE DOOR INSTALLATION

AUSTRALIAN STANDARD 1905.1:2015
SECTION 5 INSTALLATION
5.5 CLEARANCES AROUND DOORS LEAVES

Threshold and floor finish
Figure:1
Clearances between the bottom of all door leaves and the floor shall be as follows:

(a) Between the leaf and the top surface of the floor including any floor covering—not less than 3 mm and not more than 10 mm.
(b) Between the leaf and the top of the non-combustible threshold—not more than 25 mm.

NOTE: When the installed doorset is inspected for compliance with Item (b), the clearance should not exceed 25 mm for the purpose of certification unless a note providing information on clearances is made in the evidence of compliance.

Side-hung door, leaf-to-frame
Figure:2 & 3
Door leaves side-hung into rebated frames shall be installed to swing clear of the door frame and shall have mean clearances, in the closed position, between the leaf and the head and between the leaf and each stile, of not more than 3 mm.
NOTE: Measurements should be taken at intervals of not less than 750 mm apart, and there should be a minimum of three measurements to each vertical edge of the leaf and two measurements on horizontal edge.

Side-hung door, leaf-to-doorstop
Figure:2 & 3
Door leaves side-hung into rebated frames shall be installed to swing clear of the door frame and shall have mean clearances, in the closed position, between the face of the leaf and the doorstop, not more than 3 mm, and the maximum shall be not more than 5 mm at any location.

Clearances Around Door Leaves

Figure: 1

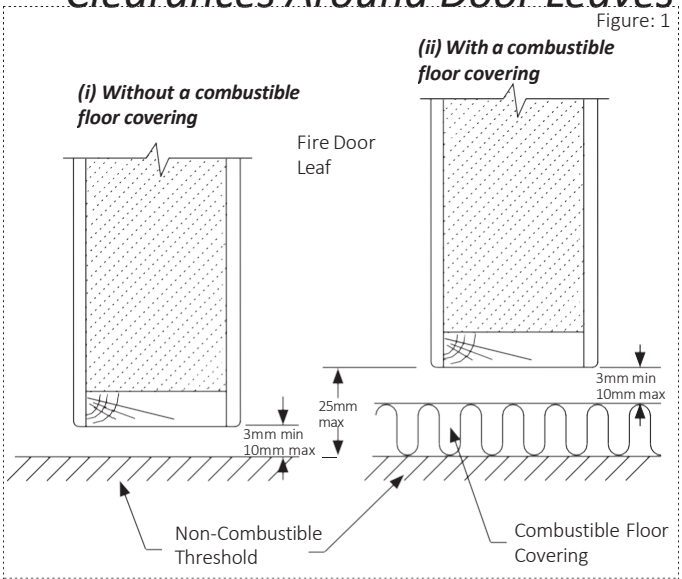


Figure: 2

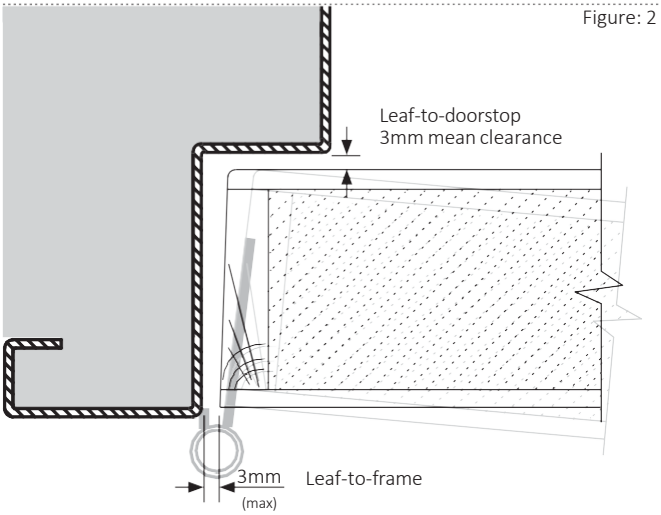
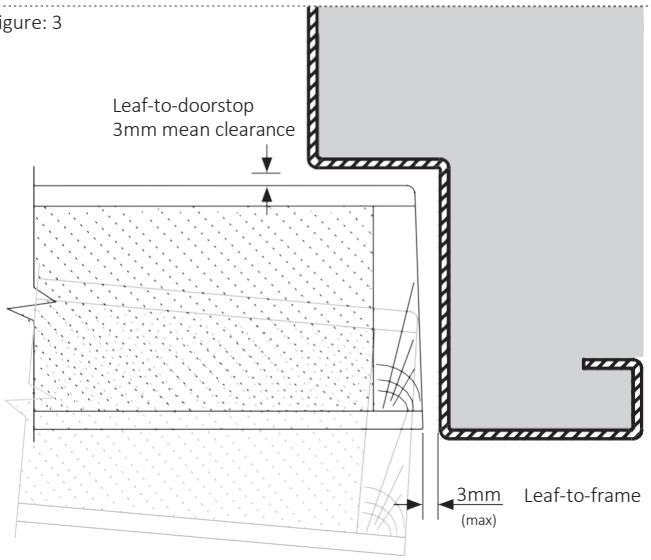


Figure: 3



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FIRE DOOR CERTIFICATION

The purpose of the fire doors certification/Inspection is to ensure the installation of the frames and doors meet the requirements of the Australian standards. Once the inspection is completed fire tags can be issued by Spence doors for the fire rated doors and frames along with certification documentation.

In states outside of Queensland the builder will be issued an installation checklist to confirm installation compliance.

In Queensland a certified inspector will inspect the installation. The certifier is not responsible for snagging or rectification of defects, this is the responsibility of the builder to complete prior to the certifier arriving.

It is the responsibility of the certifier to:

1. Inspect the doors set for compliance to the Australian standards AS19.05.1
2. Complete an installation compliance sheet.
3. Complete a schedule of evidence noting any non-conformances which is to be provided to the builder for rectification.
4. Re-inspect non-compliant items once rectified (at client expense).
5. Complete form 16 and door certification and issue to the client with the schedule of evidence.

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