

# FIRE DOOR CORE<sup>®</sup>



## FDC HANDBOOK

2022



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*FDC Test Doors being removed from the Furnace after 4hours with Temperatures up to 1150°C – Still Very much intact*



## IMPORTANT INFORMATION BULLETIN

### Changes to AS 1530.4:2014 and the NCC

The most recent updates to the Fire Testing Standard AS1530.4 was in 2014, encompassing a stricter failure criteria. These changes have made it far more difficult for conventional doors to pass these tests. The NCC versions prior to 2019 allowed for tests and assessments carried out prior to the updated changes to be adopted in manufacturing and supplying fire rated door sets.

The 2019 version of the NCC however abolished the adoption of tests or supporting data prior to the 2014 test standard to be used. This change formally kicks in from 1<sup>st</sup> May 2022.

Please click on the link below to read the purpose statement issued by The Fire Protection Association Australia for further guidance on the above. *This is a requirement of the National Construction Code.*

[http://www.fpa.com.au/media/274500/fpa\\_australia\\_ib\\_17\\_ncc\\_2019\\_note\\_on\\_as\\_1530.4.pdf](http://www.fpa.com.au/media/274500/fpa_australia_ib_17_ncc_2019_note_on_as_1530.4.pdf)

### What does this mean for customers using traditional fire doors?

From 1<sup>st</sup> May 2022, suppliers/installers **are not** permitted to tag and certify fire door sets in accordance with AS1905.1:2015 that rely on fire test evidence referencing prior versions of AS1530.4:2014. Check with your core supplier if the doors that are being supplied will be compliant. You will have to start checking right away how your project may be affected and if your doors will make the cut off dates.

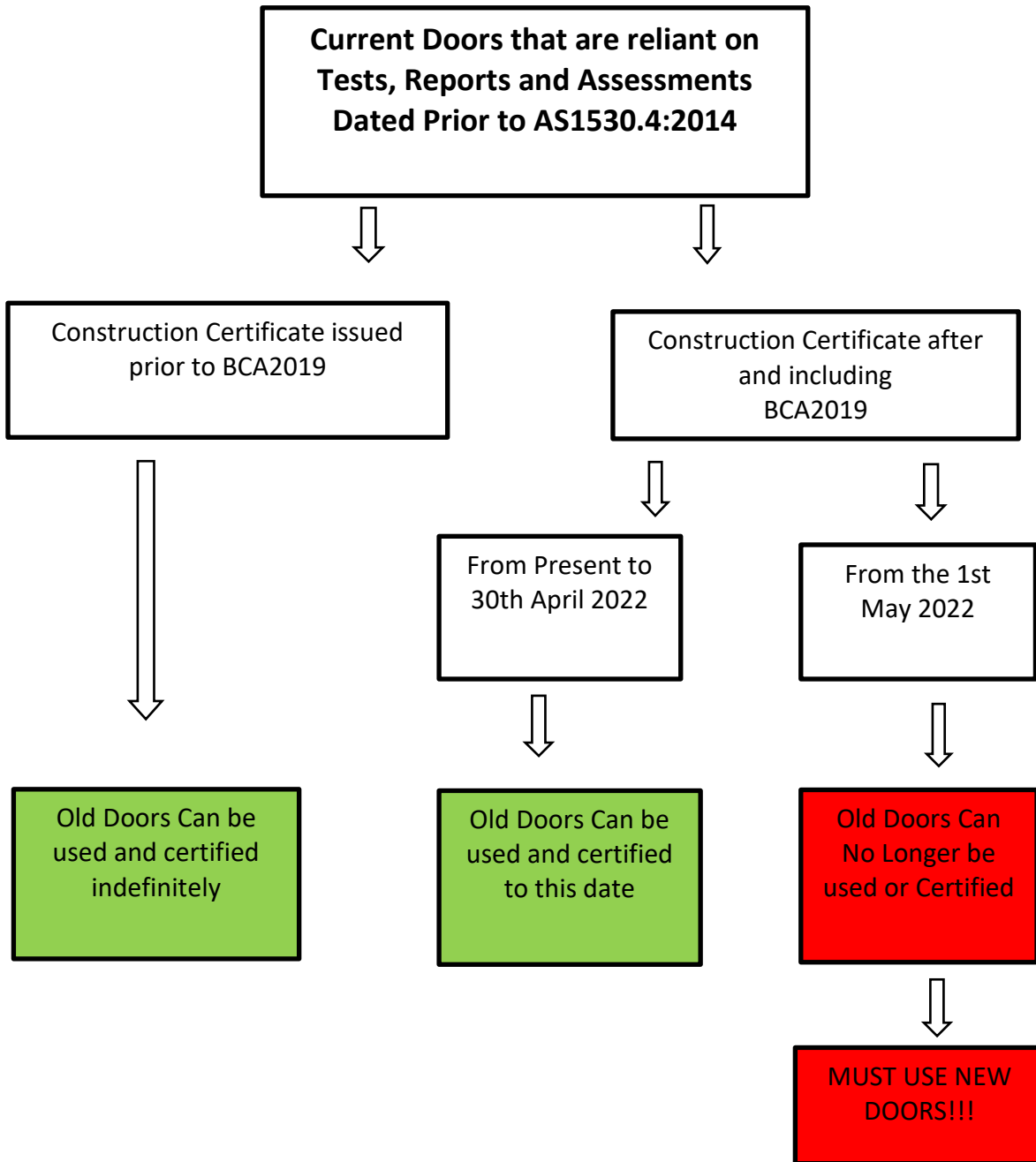
### What doors CAN be used?

FDC have been tirelessly working on a revolutionary new fire door. It has been years in the making, involving a pioneering design and new materials that won't burn to combat the antiquated fire door systems that have been used in Australia for decades and are fast becoming obsolete. The FDC door designs have exceeded all expectations in testing and are in the final phases of reporting.

FDC have strong relationships with long standing stakeholders in the industry and will be licencing the new systems to allow these stakeholders to manufacture, supply, distribute, install and certify their respective products and components that make up the new compliant Fire Door.



*Unexposed Face of FDC Test Doors After 4hours without failure*



Additional information can be found in the below link:

[http://www.fpa.com.au/media/274500/fpa\\_australia\\_ib\\_17\\_ncc\\_2019\\_note\\_on\\_as\\_1530.4.pdf](http://www.fpa.com.au/media/274500/fpa_australia_ib_17_ncc_2019_note_on_as_1530.4.pdf)



## GUIDES AND REFERENCES

### 1. Endurance and Cycle Testing

FDC doors are designed and proven to last. The Australian Standards guidelines suggest 10,000 slam cycles. FDC doors have been subjected to over 100,000 slam cycles without failure when the test was stopped. If you open and close your door four times a day, that's equivalent to 68 years!



FDC Door Still in Perfect Condition  
after 100,000 slam cycles

### 2. Approvals

FDC doors have been tested and approved to below standard:

#### Fire Testing

- AS 1530.4:2014 Methods for fire tests on building materials, components and structures
  - o Part 4: Fire resistance tests for elements of construction
- AS 1905.1:2015 Components for the fire protection of openings in fire resistant walls
  - o Part 1: Fire Resistant door sets
  - o

#### Acoustic Testing

- 36mm Door Acoustic rated up to RW34 with Standard Seals as per ISO717-1

### 3. Installation and Material Safety Guide

Refer to the installation manual and Safety Guide in attached links below

- <https://firesafeddoors.com.au/library/>

### 4. Warranty, Terms and Conditions

Due to the complexity of fire doors, it is important that operators adhere to the maintenance requirements to ensure effective operation of the fire door system in an event of an emergency.

Please refer to below link for the full Warranty, Terms & Conditions, and maintenance manual

- <https://firesafeddoors.com.au/library/>



## 5. Factory Machining Process

Due to the nature of the non-combustible materials used in FDC doors, it is strongly recommended to have all of the cutting done in a controlled environment to minimise dust, such as a CNC machine using dust extraction. The benefit of doing all of the cutting in a factory setting also enables considerable time and cost savings on site.



## 6. Manufacturers, Suppliers and Agents

### Fire Doors

Compliant fire doors can be procured through the following agents:

#### Complete Fire Door Specialists

Phone: 02 9567 4435  
 Email: [info@cfds.sydney](mailto:info@cfds.sydney)  
 Web: [www.completefiredoorspecialists.com.au](http://www.completefiredoorspecialists.com.au)

#### Fire Doors Manufacturers

Phone: 02 9907 1620  
 Email: [info@fdm.sydney](mailto:info@fdm.sydney)

#### Steel Door Frames Pty Ltd

Phone: 02 9792 6063  
 Email: [steeldoorframes@sdf.sydney](mailto:steeldoorframes@sdf.sydney)

### Metal Door Frames

Manufacturer of fire rated door frames compliant with the new codes (including fire bolt prep):

#### Steel Door Frames Pty Ltd

Phone: 02 9792 6063  
 Email: [steeldoorframes@sdf.sydney](mailto:steeldoorframes@sdf.sydney)



## WALL TYPES AND FRAME PROFILE TABLE

### Cast-In Concrete/Retro Fit Masonry/Other Masonry (With No Firebolt)

Wall System	Wall FRL	Throat Size	Leaf Width (mm)	Leaf Height (mm)	Min Thick	Door set FRL	Report Ref #
Minimum 110mm thick	2HR	114mm	Up to 1060	Up to 2360	36mm	-/60/30	FAS200387
Double Brick minimum 190mm	2-4HR	Up to 250mm	Up to 1060	Up to 2360	36mm	-/60/30	FAS200387
Double Brick with Cavity minimum 190mm	2-3HR	Up to 300mm	Up to 1060	Up to 2360	36mm	-/60/30	FAS200387

### Cast-In Concrete/Retro Fit Masonry/Other Masonry (With 1x Firebolt)

Wall System	Wall FRL	Throat Size	Leaf Width (mm)	Leaf Height (mm)	Min Thick	Door set FRL	Report Ref #
Minimum 110mm thick	2HR	114mm	Up to 1020	Up to 2250	36mm	-/120/30	FAS200387
Brick Veneer	2HR	Up to 350mm	Up to 1020	Up to 2250	36mm	-/60/30	FAS200387
Double Brick minimum 190mm	2-4HR	Up to 250mm	Up to 1020	Up to 2250	36mm	-/120/30	FAS200387
Double Brick with Cavity minimum 190mm	2-3HR	Up to 300mm	Up to 1020	Up to 2250	36mm	-/120/30	FAS200387

### Cast-In Concrete/Retro Fit Masonry/Other Masonry (With 2x Firebolts)

Wall System	Wall FRL	Throat Size	Leaf Width (mm)	Leaf Height (mm)	Min Thick	Door set FRL	Report Ref #
Minimum 150mm thick	3HR	152mm	Up to 930	Up to 2355	36mm	-/180/30	FAS200387
Minimum 190mm thick	4HR	193mm	Up to 930	Up to 2355	36mm	-/180/30	FAS200387
Minimum 190mm thick	4HR	193mm	Up to 815	Up to 2050	36mm	-/240/30	FAS200387
Double Brick minimum 190mm	4HR	Up to 250mm	Up to 930	Up to 2355	36mm	-/180/30	FAS200387
Double Brick minimum 190mm	4HR	Up to 250mm	Up to 815	Up to 2050	36mm	-/240/30	FAS200387
Double Brick with Cavity minimum 190mm	3HR	Up to 300mm	Up to 930	Up to 2355	36mm	-/180/30	FAS200387

### Hebel (With No Firebolt)

Wall System	Wall FRL	Throat Size	Leaf Width (mm)	Leaf Height (mm)	Min Thick	Door set FRL	Report Ref #
Hebel with Plasterboard	2HR	Minimum 101mm	Up to 1060	Up to 2360	36mm	-/60/30	FAS200387
Hebel Combination Wall	1HR	185mm to 350mm	Up to 1060	Up to 2360	36mm	-/60/30	FAS200387

### Hebel (With 1x Firebolt)

Wall System	Wall FRL	Throat Size	Leaf Width (mm)	Leaf Height (mm)	Min Thick	Door set FRL	Report Ref #
Hebel with Plasterboard	2HR	Minimum 101mm	Up to 1020	Up to 2250	36mm	-/120/30	FAS200387



### Fire Rated Stud & Plasterboard (With 1x Firebolt)

Wall System	Wall FRL	Throat Size	Leaf Width (mm)	Leaf Height (mm)	Min Thick	Door set FRL	Report Ref #
64 Stud, Double Layer	2HR	Minimum 122mm	Up to 1170	Up to 2500	36mm	-/60/30	FAS200387
92 Stud, Single layer	1HR	Minimum 124mm	Up to 1170	Up to 2500	36mm	-/60/30	FAS200387
92 Stud, Double Layer	2HR	Minimum 122mm	Up to 1170	Up to 2500	36mm	-/60/30	FAS200387
Double Stud, Double Layer	1HR	Minimum 124mm	Up to 1170	Up to 2500	36mm	-/60/30	FAS200387

### Fire Rated Pair (With 2x Firebolts)

Wall System	Wall FRL	Throat Size	Leaf Width (mm)	Leaf Height (mm)	Min Thick	Door set FRL	Report Ref #
Fire Rated Stud & Plasterboard	2HR	Minimum 144mm	Up to 2340 (1170mm ea.)	Up to 2500	48mm	-/60/30	FAS200387
Fire Rated Stud & Plasterboard	2HR	Minimum 144mm	Up to 2040 (1020mm ea.)	Up to 2250	48mm	-/120/30	FAS200387
All Masonry & Concrete	2HR	Minimum 110mm	Up to 2340 (1170mm ea.)	Up to 2500	48mm	-/60/30	FAS200387
All Masonry & Concrete	2HR	Minimum 110mm	Up to 2040 (1020mm ea.)	Up to 2250	48mm	-/120/30	FAS200387





## ADDITIONAL DETAILS/PERMISSABLE VARIATIONS:

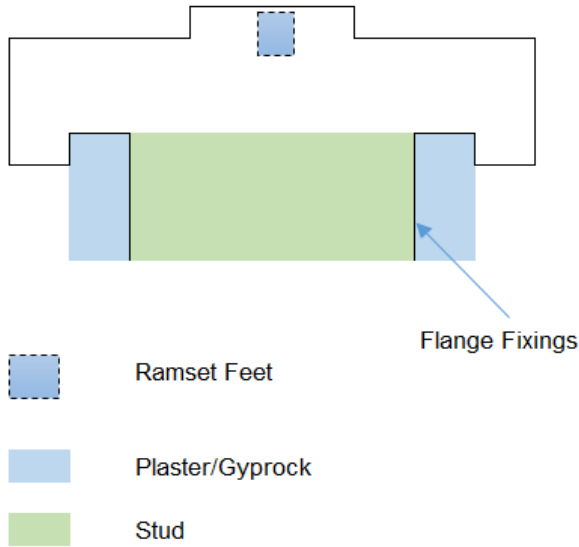
1. Frame Backfill Material may be any of below.
  - a. Casting Plaster
  - b. Cement/Mortar Mix
  - c. Grout
2. Frame Metal Thickness may range from 1.1mm to 1.6mm. Note: Maxi Frames must be minimum 1.4mm thick.
3. Door Panel Thickness may range from 36mm to 49mm. Note: Maxi Pair Panels must be nominal 46mm thick.
4. Frame Profile Dimensions below may change +/- 20%
  - a. Mini Frames
    - i. Return 12mm
    - ii. Rebate 41mm
    - iii. Doorstop Depth 25mm (may be increased more than 20%)
    - iv. Doorstop Width – Dependant on Wall type and throat size. Refer Table Above
    - v. Architrave 38mm
  - b. Maxi Frame
    - i. Return 12mm
    - ii. Rebate 51mm
    - iii. Doorstop Depth 25mm (may be increased more than 20%)
    - iv. Doorstop Width – Dependant on Wall type and throat size. Refer Table Above
    - v. Architrave 38mm
5. Frames may be single rebate or double rebate.
6. Door Sizes may be decreased from above table.
7. Welded or screw fixed hinges may be used. Note: Mini Frames require Fire Rated 100mm x 75mm hinges, Maxi Frames require Fire Rated 100mm x 100mm hinges. Hinges may be Zinc Plated or Stainless Steel.
8. Standard Striker Height is between 900mm-1100mm from the bottom of the frame.
9. Hinges Requirements as per below:
  - a. Fire Rated 3HRS & 4HRS Doors, minimum 4 Hinges are required.
  - b. Doors' Sizes up to 1020mm (W) x 2250mm(H), minimum 3 Hinges are required.
  - c. Doors' Sizes more than 1020mm in Width, additional Hinge is required.
  - d. Doors' Sizes more than 2250mm in Height, additional Hinge is required.
  - e. Hinges Positioning as per testing and manufacturer.
10. Single Door - Fire Bolts positioning to be at a consistent 100mm from the head on the latch side, and if second is required, it is to be at midpoint between the existing Fire bolt and lockset.
11. Double Door - Fire Bolts positioning to be at the head of the inactive leaf 200mm from the lock side, and another Firebolt on the latch side of active leaf 100mm from the head.
12. Exposed intumescent seals must be installed to the head, hinge side and lock side of all FDC Door sets.
13. In general, our door sizes are available to be expanded to 1200mm (W) x 2500mm (H) with additional reinforcing. Please contact our office for more information.
14. For alternative masonry wall types (AFS, Dintel, etc), the wall system must be designed in accordance with AS3600:2018 or AS3700:2018 (as appropriate) to comply with the FDC door and to be within the guidelines of the compliance tools feature on the website.
15. All compliance details are based on Assessment Report #FAS200387, AS1905.1:2015, and Doors tested to AS1530.4:2014.
16. Refer to Website & FDC for any further information on FDC door sets.  
 Website: <https://firesafedoors.com.au/>



**FRAME FIXING DETAILS**

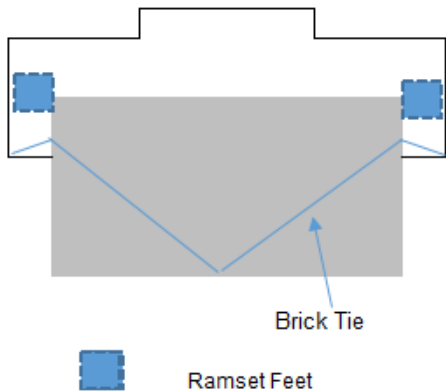
**1. Fire Rated Stud and Plasterboard Wall**

- Ramset Feet:** Centre of Stop Section  
Min 20mm Length Ramset Pins
- Flange Fixings:** Max 300mm Centres to Hinge and Lock Stiles  
Min 10 Gauge Steel Flat top screws, 16mm in length
- Backfill:** Grout / Cement / Mortar Mix / Plaster



**2. Masonry Wall**

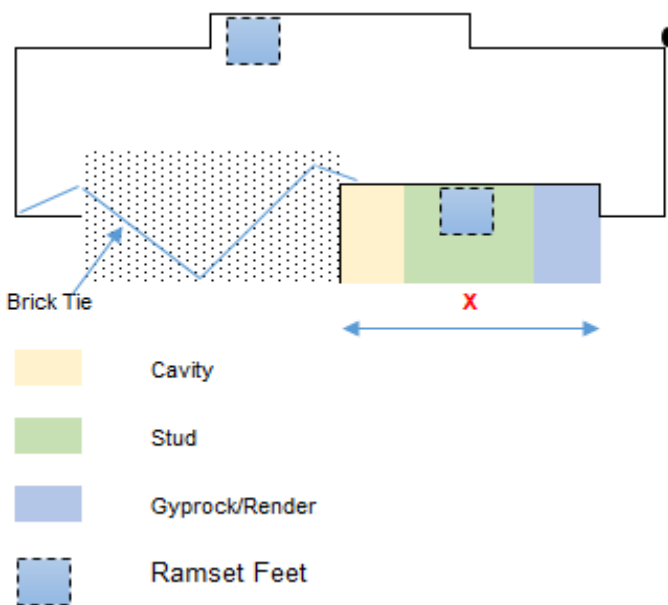
- Ramset Feet:** Positioned in centre of each architrave  
Min 20mm Length Ramset Pins
- Brick Ties:** Max 400mm Centres to Hinge and Lock Stiles  
3mm Galvanised or stainless-steel wire ties
- Backfill:** Grout / Cement / Mortar Mix / Plaster





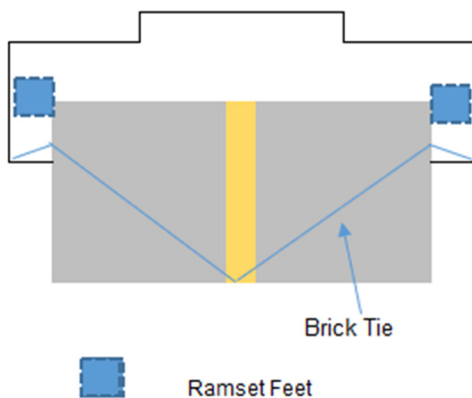
**3. Brick Veneer**

- Ramset Feet:** Positioned at stop Section, in line with centre of brick/block  
 Additional tab to middle of stud side section when 'x' measurement is greater than 100mm  
 Min 20mm Length Ramset Pins
- Brick Ties:** Max 400mm Centres to Hinge and Lock Stiles  
 3mm Galvanised or stainless-steel wire ties
- Stud Fixings:** Max 300mm Centres to Hinge and Lock Stiles  
 Steel Stud - Min 10 Gauge Steel Flat top screws, 16mm in length through the 'x' section of the frame return  
 Timber Stud - Min 10 Gauge Steel Screws that are appropriate length to pass through the stud and 'x' section of the frame return
- Backfill:** Grout / Cement / Mortar Mix / Plaster



**4. Double Brick Wall**

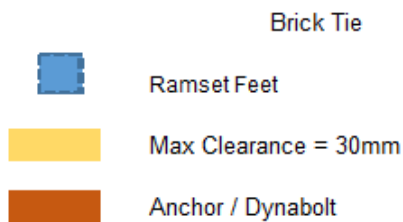
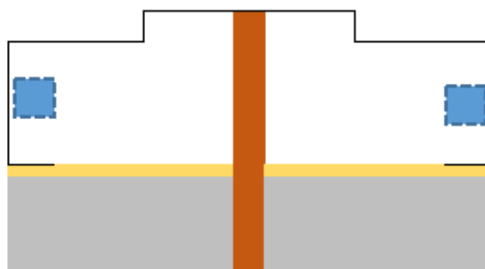
- Ramset Feet:** Positioned in centre of each architrave  
 Min 20mm Length Ramset Pins
- Brick Ties:** Max 400mm Centres to Hinge and Lock Stiles  
 3mm Galvanised or stainless-steel wire ties
- Backfill:** Grout / Cement / Mortar Mix / Plaster
- Note:** Installer to close off cavity to ensure frame is fully closed and filled.





### 5. Retrofit Wall

- Ramset Feet:** Positioned in line with centre of stop section  
Min 20mm Length Ramset Pins
- Anchors/Dyna bolts:** Max 400mm Centres to Hinge and Lock Stiles  
Min 10mm diameter Sleeved anchors  
Off Centred fixings if fitting into a double brick wall
- Backfill:** Grout / Cement / Mortar Mix / Plaster
- Clearances:** Max 30mm between Frame and Wall  
Clearance areas must be fully backfilled
- Packers:** Material may be plastic, steel, or other non-combustible materials  
Must be secure when backfilling the frame and clearance areas



### 6. Cast-in Concrete Wall Systems

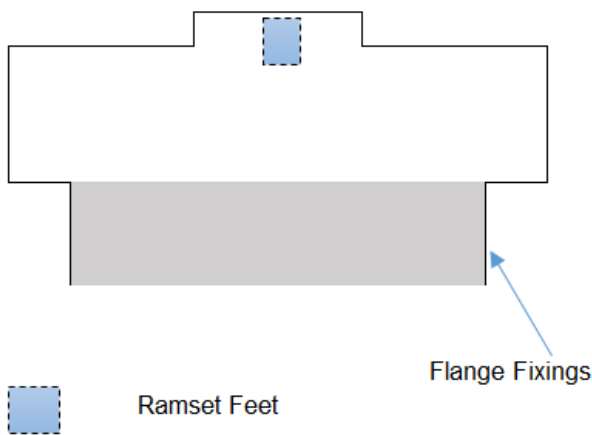
- Ramset Feet:** Positioned in line with centre of stop section  
Min 20mm Length Ramset Pins
- Flange Fixings:** Max 300mm Centres to Hinge and Lock Stiles  
Min 10 Gauge Steel Flat top screws, 16mm in length
- Backfill:** Concrete – Cast in with the wall  
Door Frame must be adequately braced before concrete filling wall + frame
- Note:** Bracing every 500mm





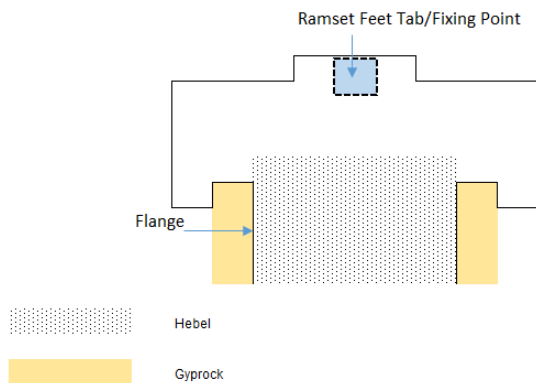
**7. Permanent Formwork Wall Systems**

- Wall Systems**            **AFS, Dintel, Ritek**
- Ramset Feet:**            Positioned in line with centre of stop section  
    Min 20mm Length Ramset Pins
- Flange Fixings:**        Max 300mm Centres to Hinge and Lock Stiles  
    Min 10 Gauge Steel Flat top screws, 16mm in length
- Backfill:**                Concrete – Cast in with the wall  
    Door Frame must be adequately braced before concrete filling wall + frame



**8. Single Hebel Walls**

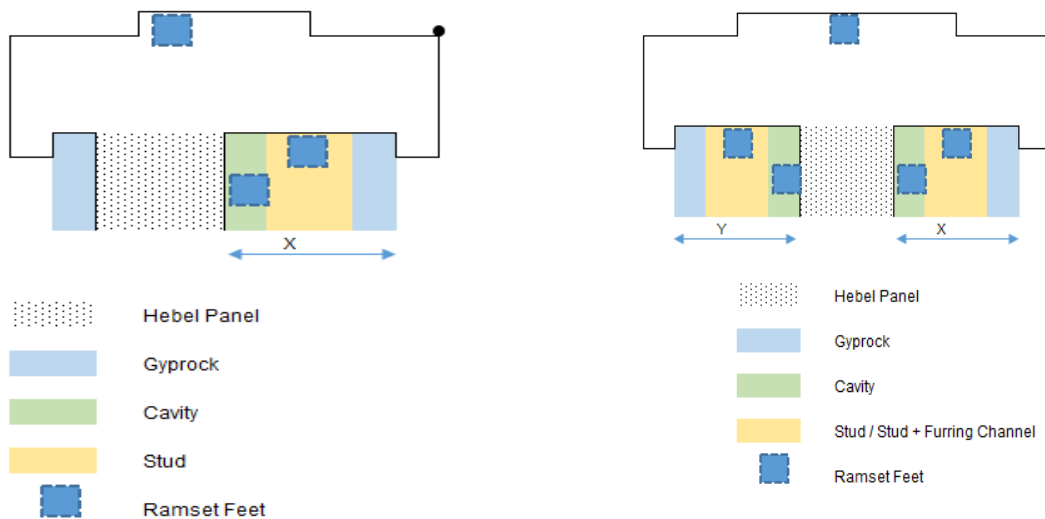
- Ramset Feet:**            Centre of Stop Section  
    Min 20mm Length Ramset Pins
- Flange Fixings:**        Max 300mm Centres to Hinge and Lock Stiles  
    Min 50mm coarse thread bugle head screws
- Backfill:**                Grout / Cement / Mortar Mix / Plaster





## 9. Hebel Cavity and Combination Walls

- Ramset Feet:** Stop Section, in line with centre of Hebel panel
- Additional tab to middle of stud side section when 'x' measurement is greater than 100mm
- Additional tab to middle of stud side flange when 'x' measurement is greater than 100mm
- Min 20mm Length Ramset Pins
- Flange Fixings:** Max 300mm Centres to Hinge and Lock Stiles
- Min 50mm coarse thread bugle head screws to one flange side
- 14-10 x 65mm hex head type 17 screws to other flange side
- Stud Fixings:** Max 300mm Centres to Hinge and Lock Stiles
- Steel Stud - Min 10 Gauge Steel Flat top screws, 16mm in length through the 'x' section of the frame return
- Timber Stud - Min 10 Gauge Steel Screws that are appropriate length to pass through the stud and 'x' section of the frame return
- Backfill:** Grout / Cement / Mortar Mix / Plaster



## Wide Hebel Cavity and Combination Walls

- Ramset Feet:** Stop Section, in line with centre of Hebel panel
- Additional tab to middle of stud side section when 'x' and/or 'y' measurement is greater than 100mm
- Additional tab to middle of stud side flange when 'x' and/or 'y' measurement is greater than 100mm
- Min 20mm Length Ramset Pins
- Flange Fixings:** Max 300mm Centres to Hinge and Lock Stiles
- Min 50mm coarse thread bugle head screws to one flange side
- 14-10 x 65mm hex head type 17 screws to other flange side
- Stud Fixings:** Max 300mm Centres to Hinge and Lock Stiles
- Steel Stud - Min 10 Gauge Steel Flat top screws, 16mm in length through the 'x' section of the frame return
- Timber Stud - Min 10 Gauge Steel Screws that are appropriate length to pass through the stud and 'x' section of the frame return
- Backfill:** Grout / Cement / Mortar Mix / Plaster
- Throat Width** Max 350mm



## APPROVED DOOR HARDWARE

All fire rated door assemblies must have appropriate and approved door hardware meeting the requirements that each door must be self-closing and self-latching.

The full list of hardware which has been tested, assessed, and approved to be used in conjunction with fire doors manufactured with FDC are as per below:

### Locks - Cylindrical

Brand	Lock Type	Series	FRL
Xcalibur	Cylindrical	X6	4HR
Carbine	Cylindrical	8000	2HR

### Locks - Mortice

Brand	Lock Type	Series	FRL
Lockwood	Mortice	3500	1HR

Note: Permissible variations to this handle are allowed as per AS1530.4:2014 if they meet the criteria from Section 7.9. Please contact us for more information.

### Electronic Locks

Brand	Lock Type	Series	FRL
Assa Abloy	Vingcard Essence (V2)	RFID	1HR

### Closers

Brand	Series	FRL
Sabre	770	4HR
Vinco	DC673	1HR
Hafele	DCL110	2HR
Hafele	DCL55	1HR

### Seals

Brand	Series	FRL
Kilargo	KG1612BW	1HR
Kilargo	IS7025SI	1HR
Kilargo	IS8011SI-KG	1HR
Kilargo	IS8010SI	1HR
Kilargo	IS1212 Flexi-Wing	1HR
FDC	Encased INT Stick on Seal – 20mm x 4mm	2HR
FDC	Encased INT Stick on Seal – 25mm x 2mm	2HR

### Miscellaneous Hardware

Item	FRL
Hafele Door Viewer 200Deg 35-60mm	1HR
Lockwood 8530 Special Latch Assembly	2HR
Novas SB250 Sequence Selector SSS	2HR
Kilargo FDMS-TP	2HR
FDC Auxiliary Fire Bolt	4HR

## APPROVED SMOKE & ACCOUSTIC DOOR SEALS

The full list of seals which have been tested, assessed and approved to be used in conjunction with fire doors manufactured with FDC are as per below:

### Seals

Brand	Series	FRL
Kilargo	KG1612BW	1HR
Kilargo	IS7025SI	1HR
Kilargo	IS8011SI-KG	1HR
Kilargo	IS8010SI	1HR

**If your specifications for sizes, frame profiles, hardware or seals are not within this handbook, contact your manufacturer to discuss a course of action to achieve what is needed to make your door set compliant.**