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Title

Field of Application for:
Halspan® Prima 30 Doorsets
Part 1: Timber based frames

For 30 minutes Fire Resistance

Report No.:

FEA/F97174 Revision J – Part 1

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Prepared for:

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The version/revision stated on the front of this Field of Application supersedes all previous versions/revisions and must be used to manufacture doorsets from the stated validity date on this front cover. Previous revisions of the Field of Application cannot be used once an updated Field of Application has been issued under a new revision.

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12 Installation

12.1 General

This section considers the installation of direct types of frames and doorset.

- the door frame and architrave installation position relative to the wall
- the fire stopping between the frame and the wall and the use of shadow gaps
- the fixing requirement including packers
- the requirements for door edge gaps
- the trimming of door edges

Section 12.7 gives the fire stopping requirements for the different frame types, depending on the gap between the rear of the frame and the structural opening.

Specific fire stopping requirements are needed for the projecting frames and shadow gap details given in section 12.4, which must be followed as stated in that section.

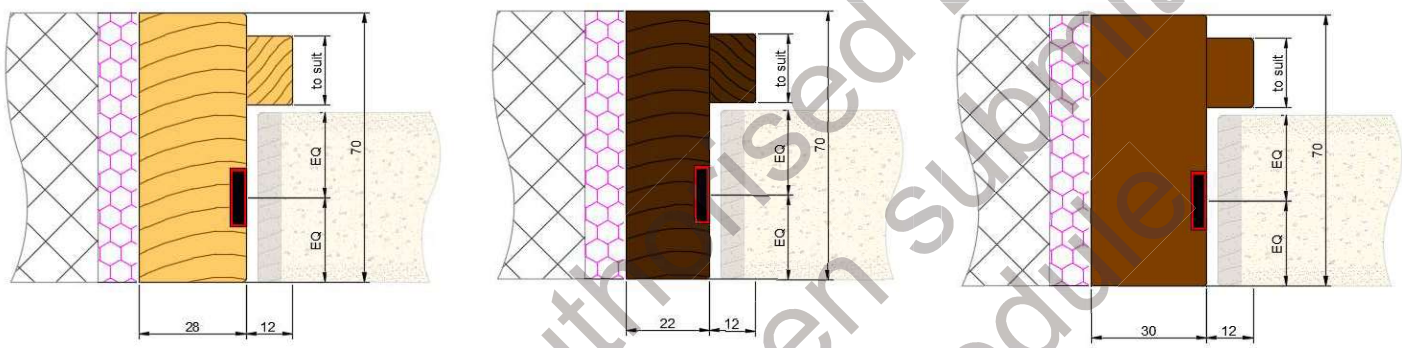
12.2 Door Frame Installation: Frame 1, 2 & 3

The following diagrams indicate acceptable door frame/wall installation arrangements and are used with leaf 1 and 2:

The drawings below show the relationship of frame to wall and location of fire stopping between wall and frame.

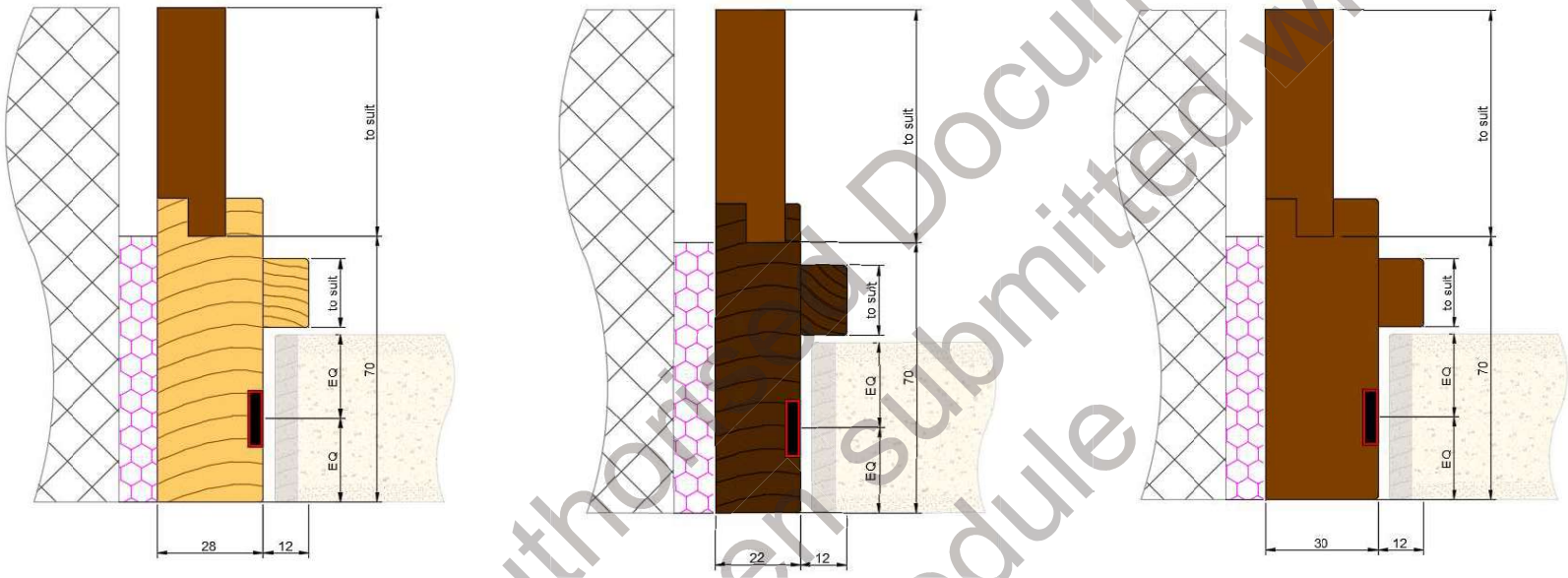
See section 12.9 for preparation requirement for the aperture.

Frame flush to wall with architrave being optional



(A): Frame 1 (B): Frame 2 (C): Frame 3

Example of installation detail for frames 1, 2 & 3



(D): Frame 1 (E): Frame 2 (F): Frame 3

Example of installation details for frames 1, 2 & 3 with MDF/softwood extension liners

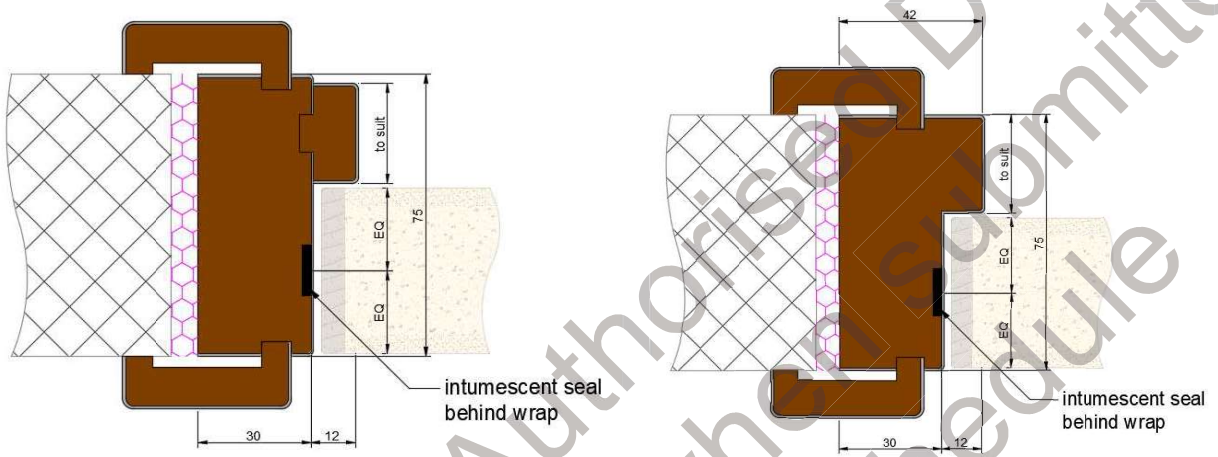
Note: The above drawings assume that the wall aperture is suitably protected so that the effects of the fire cannot affect the wall. If this is not the case the fire stopping must be full depth and the extension liner must be the same width and material as the frame.

12.3 Door Frame Installation: Frame 4

The following diagrams indicate acceptable door frame installations and are used with leaf 1 and 2:

The drawings below show the relationship of frame and architrave to wall and location of fire stopping between wall and frame.

See section 12.9 for preparation requirement for the aperture.



(A): Frame with planted stop (B): Frame 4 with integral (rebated) stop

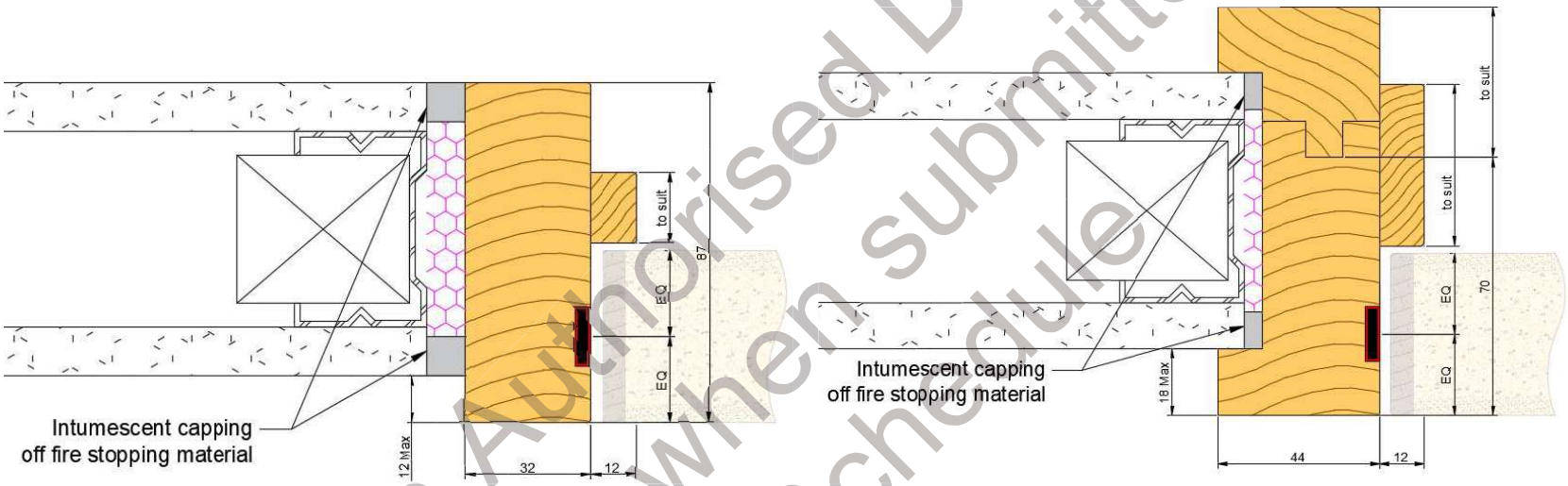
Example of installation details for frame 4

12.4 Door Frame Installation: Frame 5

The following diagrams indicate acceptable door frame installations and are used with Leaf 1 and 2 based on test CFR 1809181:

The drawings below show the relationship of frame to wall and location of fire stopping between wall and frame.

See section 12.9 for preparation requirement for the aperture.



(A): Frame 5 with planted stop

(B): Frame 5 with integral architrave

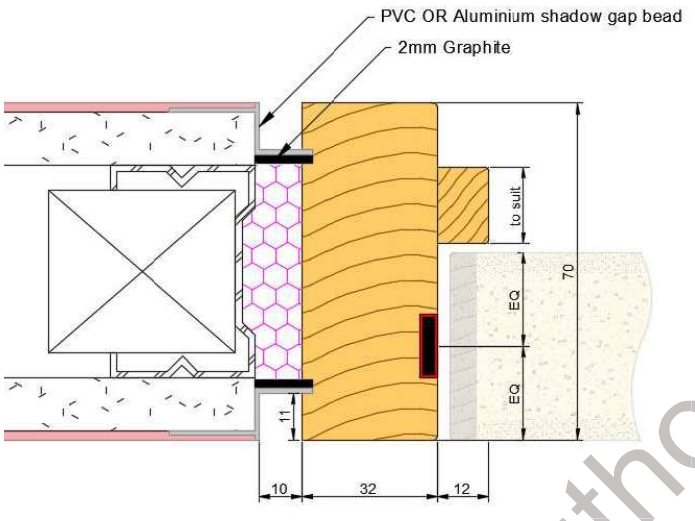
Example of installation details for frame 5

12.4.1 Shadow gaps

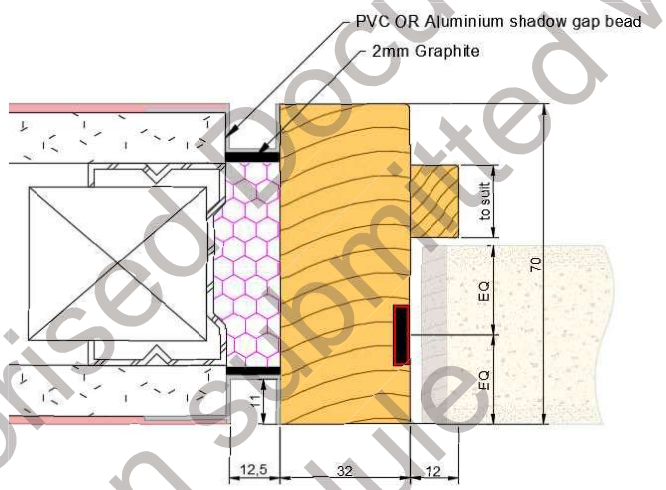
The testing of projecting door frames (Frame 5) demonstrates that the door frame is capable of a degree of resistance to fire when the rear of the frame is exposed. This gives confidence that shadow gap details can be permitted within the following parameters:

- Additional protection to the rear of the frame must be provided by either a 10mm x 2mm graphite strip or a 10mm x 4mm PVC encapsulated graphite seal fitted to the shadow gap around the whole perimeter of the door frame
- For single acting doorsets the minimum frame section width after any rebates have been taken out of the back of the frame must remain as 32mm
- For double acting doorsets the minimum frame section width after any rebates have been taken out of the back of the frame must remain as 40mm
- Where shadow gaps are created by using fire stopping see sketches C) and D) below, the fire stopping must be tightly compacted mineral wool or a fire rated foam and both materials must have test evidence to BS 476 Part 22 or BS EN 1634-1, for this application and achieved 30 minutes minimum fire resistance.
- Where shadow gaps are created by using a sub-frame see sketches E) and F) below, the sub-frame material must be manufactured from one of the following materials, fitted to ensure that when the frame is fitted there are no gaps between frame and subframe once the frame screwed into position:
    - Timber with a density >450kg/m³
    - Plywood with a density >600kg/m³
    - MDF with a density >700kg/m³
    - Particleboard with a density >600kg/m³
    - Non-combustible board
- The maximum width and depth of any shadow gap is 13mm x 13mm. These dimensions refer to the total gap after the application of any trims and/or intumescent protection

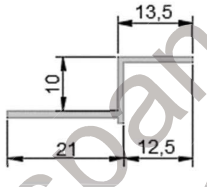
Examples of permitted shadow gap installations are shown below. <u>These examples are not exhaustive, the written details above must be adhered to.</u>



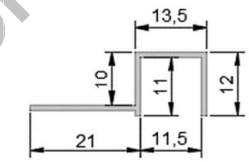
(C): Frame 5 with PVC/Aluminium shadow gap trim (1)



(D): Frame 5 with PVC/Aluminium shadow gap trim (2)

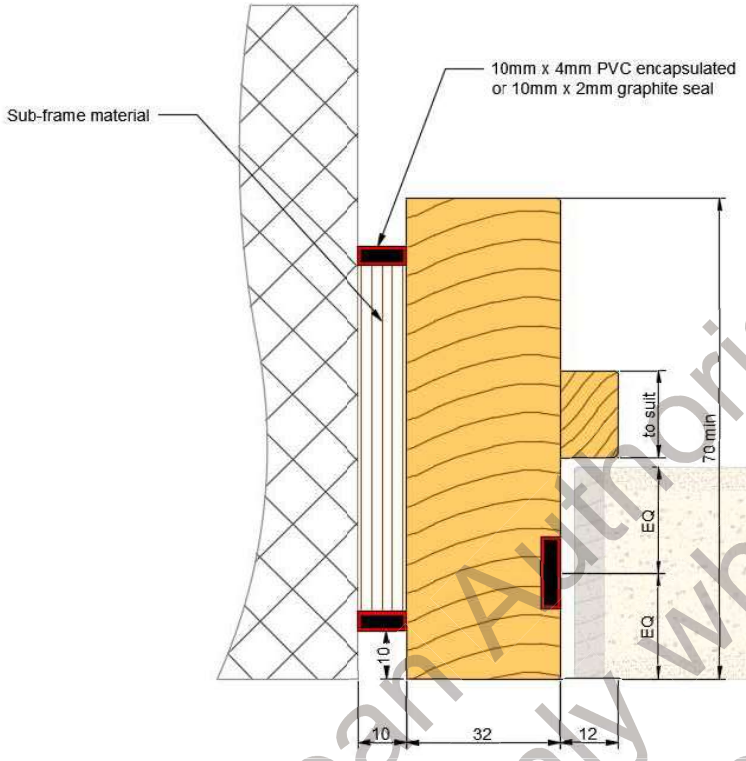


PVC/Aluminium shadow gap trim detail 1

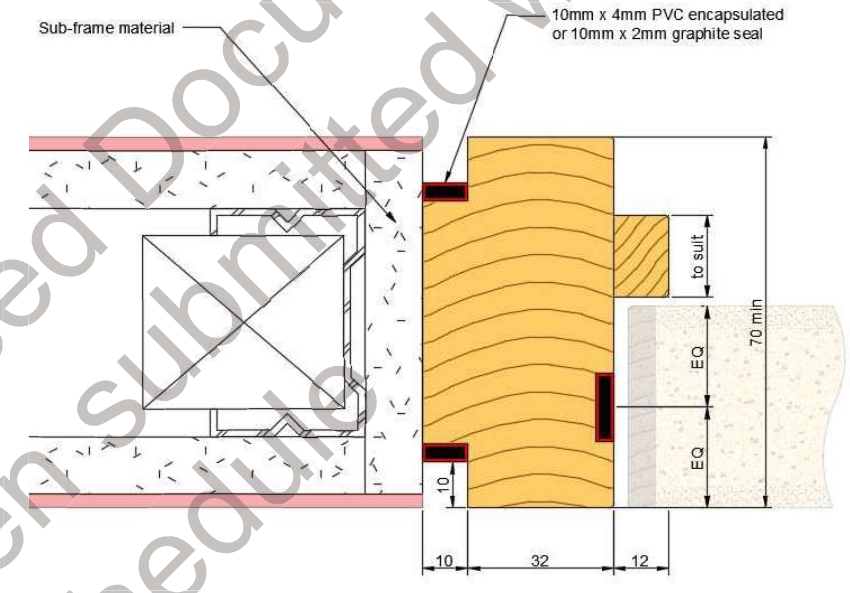


PVC/Aluminium shadow gap trim detail 2

Example of installation detail for frame 5 with shadow gap and trim where fire stopping required



(E): Frame 5 with separate sub-frame and tight fit into aperture forming shadow gap (3)



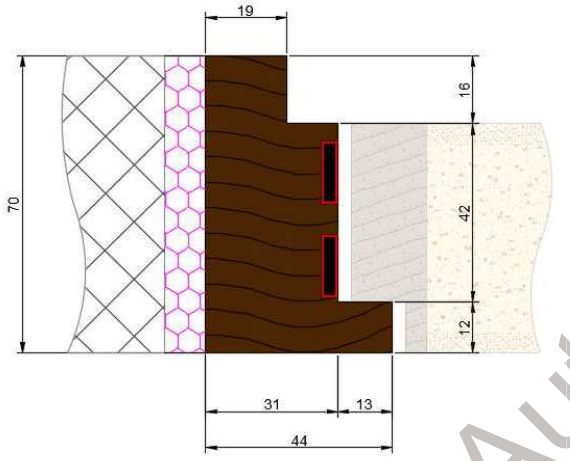
(F): Frame 5 with integral sub-frame and tight fit into aperture forming shadow gap (4)

12.5 Door Frame Installation: Frame 6

The following diagrams indicate acceptable door frame installations and are used with Leaf 2 based on test CFR180810.

The drawings below show the relationship of frame to wall and location of fire stopping between wall and frame.

See section 12.9 for preparation requirement for the aperture.



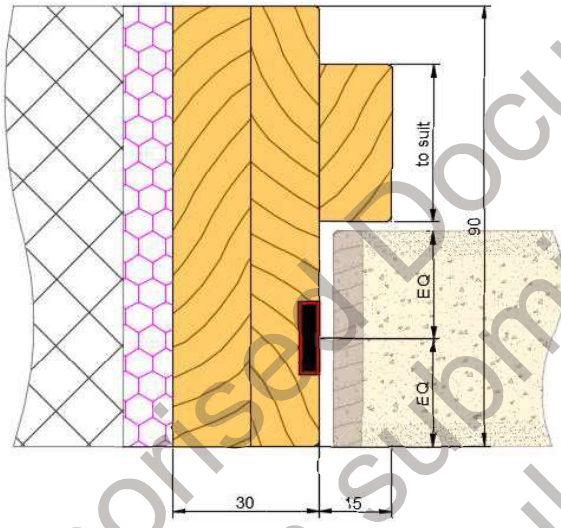
Example of installation detail for frame 6

12.6 Door Frame Installation: Frame 7

The following diagrams indicate acceptable door frame installations based on test evidence BMT/FEP/F16037 Doorset A and BMT/FEP/F14102 Doorset A & B.

The drawings below show the relationship of frame to wall and location of fire stopping between wall and frame.

See section 12.9 for preparation requirement for the aperture.



Example of installation detail for frame 7

12.7 Firestopping

The firestopping requirements between back of frame and wall are dependent on the gap size.

Gaps (mm)	**Requirement**
Up to 10	must be sealed on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Based on the test evidence the use of architraves is optional.
Up to 20	must be tightly packed with mineral fibre capped on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1 or full depth expanding PU foam, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Architraves are optional.
Over 20	A timber based or non-combustible subframe up to 50mm thick can be inserted and fixed to the wall and the gap between subframe and wall filled as follows: • Gaps 5 to 10mm filled on both sides with 10mm depth of acrylic intumescent mastic or full depth expanding PU foam, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. . • The subframe to door frame gap filled as above.

Note:

When fitting door frame shadow gaps, the details in section 12.4.1 must be followed.

12.8 Packers

Packers can be timber of equal density to the frame, plywood, MDF, or proprietary plastic packers tested by Halspan.

12.9 Wall Types

Prima 30 has been tested in the following wall types. However, consideration of the wall type must be given. The frame needs to be fixed back to a supporting construction which will remain in place for the duration of the fire resistance period. The following aspect off the different supporting constructions need to be considered.

- Masonry, concrete and solid blockwork – are considered as rigid constructions and are solid throughout the depth of the wall and have inherent fire resistance. These walls are denoted as rigid constructions in BSEN 1364 Part 1 as they deflect very little during a fire test. Due to the solid nature of the wall firestopping as detailed above will be adequate. Highly perforated blockwork is not covered by this category and specific test evidence must be referenced to ensure adequate support during the fire exposure period.
- Steel stud partitions – are considered as flexible constructions and incorporate large voids in their construction (which may or may not filled with insulation material). These walls deflect during a fire test. Specific evidence is required to ensure the stud supporting the door frame is stabilised to reduce deflection during the fire test and the aperture is adequately lined to prevent gases getting into the void.
- Timber stud partitions – are not categorised but tend not to distort significantly during a fire test. A timber stud does not need to be stabilised during the fire test and the aperture will only need to be lined if the timber stud is not fully protecting the void in the partition.
- Bespoke walls and partitions will require specific test evidence.

12.10 Onsite Leaf Size Adjustment

Leaf 1 and 2 may be altered as follows:

Leaf Size Adjustment Specification	
Element	Reduction
Leaf	The manufactured size of the leaf may be reduced in height or width without restriction but will still require to be relipped in line with this assessment.
Lipping	The dimensions stated in section 5.4 may be reduced by 1mm for fitting purposes but cannot go below the minimum. PVC/ABS lippings may not be reduced in thickness

12.11 Door Gaps

Door gaps and alignment tolerances must fall within the following range:

Door Gap & Alignment Tolerance Specification	
Location	Dimension
Door edge gaps	A minimum of 2mm and a maximum of 4mm
Alignment tolerances	Leaves must not be proud of each other or from the door frame by more than 1mm.
Threshold	10mm between bottom of leaf and top of floor covering. This is the maximum tolerance for **fire resistance only**. Where smoke control is required refer to section 14

12.12 Structural Opening

The supporting construction must provide the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

12.13 Fixings

12.13.1 Doorsets

The supporting construction must be capable of staying in place and intact for the full period of fire resistance required from the doorset. The frame jambs are to be fixed to the supporting construction using steel fixings at 600mm maximum centres and maximum of 150mm from corners of the door frame. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm. It is not necessary to fix the frame head, although packers must be inserted.

12.13.2 Doorsets with Side Screens

The supporting construction must be capable of staying in place and intact for the full period of fire resistance required from the doorset and sidescreen. The perimeter frame sections are to be fixed to the supporting construction using steel fixings at 600mm maximum centres and maximum of 150mm from corners of the perimeter frame. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm.

13 Insulation

Insulation performance may be claimed for a doorset to this design meeting the following:

Insulation Performance Criteria	
Type	Details
Partially insulating	Doorsets incorporating up to 20% of non-insulating glazing
Fully insulating	Unglazed doorsets or doorsets including 30 minute insulating glazing – glasses 11, 13 to 15 in the table in section 6.2.