warringtonfire

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Title

Field of Application for: Halspan® Prima 30 Doorsets Part 2: Steel or Aluminium based frames

For 30 minutes Fire Resistance

Report No.:

FEA/F97174 Part 2 Revision J

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This field of application report FEA/F97174 Revision J is Part 2 of the suite of (Prima 30 Halspan) assessments, other parts of the suite address other doorset designs.

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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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10 Hardware

10.1 General

The following section details the permitted scope and constraints for fitting hardware to this door design. The following items of hardware must also bear the CE or UKCA Mark in addition to the requirements outlined in the following sections. The UKCA or CE mark must indicate that the hardware is suitable for fire doors in the classification code and declaration of performance issued by the hardware manufacturer:

- Latches & locks: Test Standard EN 12209
- Single axis hinges: Test Standard EN 1935
- Controlled door closing devices: Test Standard EN 1154
- Panic exit hardware: Test Standard EN 1125.

The following sections consider what alternative items of essential hardware can be used on these doorsets.

Each item of hardware is considered in each section giving the items of hardware which

- Have been tested this information is collated in appendix B.
- Can be used as a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Halspan
- Can be used as a result of the CERTIFIRE approval of the item of hardware

Each section will consider the named item of hardware and detail if there are any limitations associated with

- Leaf size
- Configuration
- Intumescent seals
- Intumescent protection
- Frame

No item of hardware should be within

- 200mm of another item of hardware at the hanging jamb or head
- 300mm of another item of hardware at a meeting edge or closing edge as tested in WF415117.

The mortice for the hardware should be no closer than 20mm to any glazed aperture within the leaf.

Analysis of the data in section 3 indicates frames backfilled with cement have a greater reduction in temperatures recorded on the unexposed side of the frame than hollow frames or those backed with other materials. The cement assists with insulating the frame and lessening the transfer of heat to the unexposed side. This reduction of heat reduces the likelihood of heat bridging to the door edges and therefore limits erosion and charring to the door leaf edges. This provides scope to permit the use of certain items of hardware with these frames types, the details of which are given in the specific section for the item of hardware.

Hardware items should generally be fitted in accordance with the manufacturer's instructions. However, the parameters and requirements of this assessment always take precedence, including specified protection such as hardware gaskets. Referenced CERTIFIRE approved hardware may be incorporated subject to the design, material and dimensional limitations identified within this assessment report and identified on the relevant CERTIFIRE certificate.



10.2 Essential Hardware

The following table details the essential hardware for the various doorset configurations that are referenced in this assessment.

The following table includes a self-closing device, but for some permanently locked fire doors a closer is not used, providing it is fitted with the appropriate signage.

Configuration		Hardware		
	1.	Latch		
LSASD	2.	Hinges		
	3.	Overhead face fixed closer (Unless the doorset is to be kept locked)		
ULSASD	1.	Hinges		
	2.	Overhead face fixed closer		
LSASD+OP	1.	Latch		
	2.	Hinges		
	3.	Overhead face fixed closer (Unless the doorset is to be kept locked)		
	1.	Latch		
	2.	Hinges		
LSADD	3.	Overhead face fixed closer (Unless the doorset is to be kept locked)		
	4.	Flush bolt or surface mounted bolt		
	1.	Hinges		
ULSADD	2.	Overhead face fixed closer		

Note: It is permitted to omit the door closer and fit bolts to the inactive leaf of unlatched double doorsets. The active leaf must be fitted with a door closer and both leaves must carry the appropriate signage.



10.3 Latches & Locks

10.3.1 Single point latches & locks

A single point primary latch is suitable however a secondary lock may be used for increased security. The following details apply:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configurations that must include latches LSASD, LSASD+OP, LSADD (check configuration limitations for each frame type in section 4.5.2.1)
- In all instances the location of the spindle must be between 800 1300mm from the threshold.
- Intumescent Protection: see section 8.1

A single point primary lock (i.e. a locking mechanism only) is suitable however a secondary lock may be used for increased security. The following details apply:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configurations when only lock fitted ULSASD, ULSADD (check configuration limitations for each frame type in section 4.5.2.1)
- A secondary latch/lock must be located no closer than 300mm from primary and the top of the secondary latch/lock forend no closer than 150mm to the leaf head.
- Intumescent Protection: see section 8.1

Configurations that include roller catches and locks without latches (with self-closing devices) are considered to perform in a fire test as unlatched as there is no positive latching mechanism.

Intumescent requirements:

• Single point latch located in meeting edges must use a double strip intumescent detail in addition to the lock protection, as required.

The table below details the approved locksets, leaf types and frame types based on the primary test evidence in section 3.1 of this assessment.

Element	Leaf & Frame	Configuration	Manufacturer & Product Reference	Size (mm)
S	3/M2	LSASD	1. Tubular mortice latch	57 x 26
Locks & latches	1/M3	LSASD	2. Union 2 lever mortise latch	152 x 22
0	2/M4	LSASD or LSASD+OP	3. Zoo Hardware ZDL0060LR	235 x 22



The table below details the approved locks for double leaf doorset configurations based on primary test evidence.

Element	Leaf & Frame	Configuration	Manufacturer & Product Reference	Size of forend (mm)
1/M4 1 & 2/M1, M3, M4 & M5 1 & 2/M1, M3, M4 & M5	1/M4	LSADD	1. R60 Eurospec Lockset LCK-BSS- 100	235 x 22
	1 & 2/M1, M3, M4 & M5	ULSADD	2. Union mortice latch	235 x 24
	ULSADD	3. Halspan LCK-BSS- 100 *	235 x 24	
	LSADD	4. Assa Abloy 4292	2 35 x 20	
	1 & 2/M1, M3, M4 & M5	ULSADD	5. Henderson Hardware 3 lever lock/latch	152-x 22
	1 & 2/M1, M3, M4 & M5	ULSADD	6. Legge Tubular mortice latch	60 x 20
	1 & 2/M1, M3, M4 & M5	ULSADD	7. Colson Sash lock	156 x 25
	1 & 2/M1, M3, M4 & M5	ULSADD	8. Era Security Products Tubular mortise latch	57 x 25
	1 & 2/M1, M3, M4 & M5	LSADD	9. Devon 88.601.86	235 x 25

* The LCK-BBS-104 latch can be used instead of the successfully tested LCK-BSS-100 latch as it is of the same lock design but incorporates a radius forend. It is the opinion of Warringtonfire that the change in forend shape would have no significant effect on the doorsets fire resistance performance and therefore the LCK-BBS-104 latch is permitted in the leaf type, frame type and configuration given in the table above.

Locks and latches tested in double doorsets incorporating timber frames as summarised in the test evidence listed in Appendix Z can be installed into double doorsets in metal frames as where the lock is installed at the meeting edge, it will have no interaction with the metal frame and no significant effect to the overall fire resistance performance of the doorset. See section 10.3.1 for suitable alternative latch requirements.

See section 10.1 for cement backfilled frame justification which indicates a reduction in likelihood of heat bridging to the door edges and further erosion and charring to the door leaf edge housing the latch. It is the opinion of Warringtonfire that cement backfilled frames are permitted with the use of larger latches. Additionally, test reports CFR1912021 and WF412658 both incorporated frames backfilled with foam to half depth. Analysing the thermocouple readings record on the frame in both tests, the foam infill was shown to help insulate the metal frame which remained below 180°C on the unexposed side for 50 minutes in test report CFR1912021 and 21 minutes and 23 minutes for specimens A and B in test WF412658. This data demonstrates that frame types backfilled with foam also provide insulating performance



characteristics beyond that of a hollow frame design and therefore are also acceptable with larger latches. All backfilled frames (M1, M2, M3 & M4) with either leaf 1, 2 or 3 may be fitted with alternative latches to the sizes given in section 10.3.2.

The 54mm thick door leaf permitted in this assessment is typically considered a 60 minute design consisting of an additional 10mm thickness of cellulosic material than the assessed 44mm thick door leaf. This added thickness will create a further barrier for the fire to burn through at the lock position, and because of this, all 54mm thick door leaf designs can be installed with larger latches as specified in section 10.3.1.

The hollow frame M3 was successfully tested incorporating a 152mm high latch forend fitted in a 44mm thick door blank. When the doorset comprises of a 44mm thick leaf 1 or 3, the doorset must be installed with the smaller sized latch as specified in section 10.3.3.

Frame M5 was not tested with a latch present, so it was an unlatched configuration which would allow latch configurations to be covered using the rational within section 4.5.3.1. The frame section has not been prepared to accommodate a latch however in the opinion of Warringtonfire a latch could be included for the following reason;

• The frame design is based on an aluminium section with a hardwood timber insert. The aluminium section would melt away when subject to a fire test and expose the timber insert which would perform with characteristics more in line with a timber frame.

For this reason, Warringtonfire have permitted smaller latches to the requirements in section 10.3.3 when the doorset comprises of one of the 44mm thick leaf 1 or 3 within this field of application assessment. Considering the analysis above, in all other instances alternative latches within section 10.3.1 can be used.

Alternatively, based on the maximum size of lock tested in single and double leaf configurations, alternative latches/locks which meet the following specification are acceptable, providing the lock has been tested to BS 476 Part 22 1987 or BS EN 1634 Part 1 in a solid timber doorset 44mm thick and achieved 30 minutes.

10.3.2 Alternative Latch Requirements - Larger Latch Option

Leaf 1 has been successfully tested with a latch engaged in report CFR1905171 to the sizes given below and the maximum permitted sizes for alternative hardware is given in the table below.

Permitted Applications	Element	Specification
Leaf 1, 2 & 3 Backfilled frames M1, M2, M3, M4 &Frame M5*	Maximum forend and strike plate dimensions	235mm high x 25mm wide x 4mm thick
	Maximum body dimensions	165mm high x 100mm wide x 18mm thick
	Intumescent protection	See section 8
	Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass with a melting point ≥ 800°C

*Only permitted with double doorset configurations and leaf 2 (54mm thick) design for frame M5.

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In all instances the location of the spindle must be between 800 – 1200mm from the threshold.

Based on the maximum size of lock permitted above, alternative latches/locks which meet the following specification are acceptable:

A Certifire approved lock/latch which is approved for 30 minutes in an ITM doorset, (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing the higher specification of hardware intumescent protection as required for the inclusion of the lock/latch within this Field of Application or the Certifire certificate are complied with. For example if the Certifire Certificate specifies intumescent protection to all concealed faces of the lock/latch and this Field of Application does not require intumescent protection to all concealed faced of the lock/latch, the fitting of the intumescent specified in the Certifire Certificate is required.

10.3.3 Leaf 1 & 3 single leaf doorsets – Hollow Frame M3 & Timber Infilled Frame M5

Leaf 1 has been successfully tested with a latch disengaged in report RF04021 and the maximum permitted sizes for alternative hardware is given in the table below.

Element	Specification		
Maximum forend and strike plate dimensions	165mm high x 25mm wide x 4mm thick		
Maximum body dimensions	145mm high x 100mm wide x 18mm thick		
Intumescent protection	see section 8		
Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass with a melting point $\ge 800^{\circ}$ C		

In all instances the location of the spindle must be between 800 – 1200mm from the threshold.

Alternative latches/locks, to the sizes specified above, which meet the following specification are acceptable:

• A Certifire approved lock/latch which is approved for 30 minutes in an ITM doorset, (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing the higher specification of hardware intumescent protection as required for the inclusion of the lock/latch within this Field of Application or the Certifire certificate are complied with. For example if the Certifire Certificate specifies intumescent protection to all concealed faces of the lock/latch and this Field of Application does not require intumescent protection to all concealed faced of the lock/latch, the fitting of the intumescent specified in the Certifire Certificate is required.



10.3.4 **Cylinders**

Cylinders have been suitably tested and where required for use with single point lock/latches are permitted for use within the following scope:

- The cylinder must be compatible with the lock/latch (which must be a lock/latch as detailed by section 10.3.1, 10.3.2 or 10.3.3).
- The cylinder must be constructed of either brass or steel with a melting point in excess of 800°C.
- Cylinder dimensions may be up to 33mm high x 17mm wide at the maximum . dimension and may be of euro profile or oval.
- Single and double cylinders, along with cylinder & turn are permitted. .
- Door preparation for single cylinders shall penetrate only half the door thickness. •
- Intumescent protection and tightness of fitting: .
 - o If the lock body is not protected with an intumescent material, the maximum clearance between leaf and cylinder is 1mm to each edge.
 - o If the lock body is protected with an intumescent material, maximum clearance between leaf and cylinder is 3mm to each edge.
 - 1mm thick MAP or non-pressure forming graphite intumescent around 0 the cylinder is optionally permitted.

10.3.5 Electro-magnetic locks

10.3.5.1 Assa Abloy electronic lock EL560

The following Assa Abloy electronic lock has been successfully tested in test reference CFR2010021-2, as follows:

EL560 electric mortice lock: fitted with Assa Abloy handleset (INOXI 3-19/242) and cylinder (CY326). Fitted 900mm from bottom of the leaf.

Based on the test evidence, and on the basis of lock dimensions, the backfilled frame analysis and justification in section 10.1, this item is assessed as suitable for use when fitted as follows:

- Leaf: 1 and 2
- Frame: M1, M2, M3 and M4 backfilled only
- Door configuration:
 - EL560 electronic mortice lock: LSASD and LSADD
 - Maximum Lock Dimensions:
 - a. Maximum forend and strike plate dimensions: 235mm high x 24mm wide x 3mm wide
 - Maximum body dimensions: 169mm high x 133mm wide x 17mm thick.
- Intumescent protection: Fitted under latch forend and around the body of the lock, one of the following:
 - a. Interdens Dufaylite Developments Ltd.
 - b. 1mm MAP paper Lorient Polyproducts Ltd.
 - 1mm Pyrostrip 300 Mann McGowan
 - d. 1mm Pyrostrip 500 Information See Seals Ltd.
 d. 1mm Therm-A-Strip Intumescent Seals Ltd.
 - e. 1mm SLS-PAD-110 Halspan Ltd.

In all instances the location of the spindle must be between 800 – 1200mm from the threshold.



10.3.6 Access Control Systems

The electronic access control systems detailed in the following sections have been successfully tested with the Prima 30 door blanks and are therefore suitable for use within the scope stated herein.

10.3.6.1 Assa Abloy RFID systems

The following Assa Abloy RFID card reader systems have been successfully tested in WF367904, as follows:

- VingCard Classic RFID: tested without a lockcase.
- VingCard Signature RFID: tested without a lockcase.

Based on the test evidence, and on the basis of lock dimensions, the backfilled frame analysis and justification in section 10.1, they are assessed as suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1 and M4 backfilled only
- Door configuration: LSASD only
- Intumescent seals Door leaf vertical edges: Minimum of 38mm wide is required.
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and lock forend in the door leaf.
- VingCard Classic RFID and VingCard Signature RFID systems may only be used with the tested ANSI DB lockcase as tested.

10.3.6.2 Dormakaba RFID systems

The following Dormakaba RFID card reader systems have been successfully tested in test references DMT-DO-50-582-R1 and DMT-DO-50-583-R1, as follows:

- 79/RT series RFID: fitted with ASM mortice lock (M7X-AXXX1-XXX), strike plate (50413X-XXX/STRIKE ASA), handleset (069-510983, F79X-10X03XX-XXX, B76-XXXXXX-XXX).
- Saffire LX series RFID: consisting of ASM mortice assembly (MSX-AXXX1-XXX), face plate, strike plate (50413X-XXX/STRIKE ASA), handleset (FSXXXAKXXXAX-XX, 069-515541-XXX, BS-XXXXXXX-XX, 069-515488-1XXX).
- Quantum RFID: consisting of mortice assembly (A70000-HAND), reader assembly (A30940-E-COLOR), strike plate (30320-H-COLOR/ ASSY, STRIKE, BUTTONS), handleset (OS-LS1XXXXXX, QM11XXXXXXXX).

Based on the test evidence, and on the basis of lock dimensions, the backfilled frame analysis and justification in section 10.1, they are assessed as suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1 and M4 backfilled only
- Door configuration: LSASD only
- Intumescent seals Door leaf vertical edges: Minimum of 38mm wide is required.
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and lock forend in door leaf.



10.3.6.3 NSP Europe RFID systems

The following NSP Europe RFID card reader systems have been successfully tested in test reference WF401228, as follows:

- SMF 614 RFID: tested with SMF 02 Duo sash lock.
- SMF Duo RFID: tested with SMF 02 Duo sash lock.

Based on the test evidence, they are suitable for use within the following parameters:

- Leaf: 1 and 2
- Frame: M1, M2, M3 and M4 backfilled only
- Door configuration: LSASD only
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and behind forend and keep.

10.3.6.4 Salto system

The following Salto card reader system has been successfully tested in test reference CFR2010021-1, as follows:

AELement Fusion: tested with Salto Mortice Lock LE7Sxx.¹

Based on the test evidence, and on the basis of lock dimensions and the backfilled frame analysis and justification in section 10.1, they are suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 and M4 backfilled only
- Maximum Lock Dimensions:
 - a. Maximum forend dimensions: 235mm high x 24mm wide x 3mm wide
 - b. Maximum body dimensions: 165mm high x 91mm wide x 15mm thick.
- Door configuration: LSASD only
- Intumescent protection: 1mm MAP or Interdens sheet Intumescent protection around all mortices and behind forend and lock forend in door leaf.



10.4 Hinges

The door can be hung using the following:

• Butt hinges

Concealed hinges and pivots are not permitted by this assessment.

10.4.1 Butt Hinges

These items are suitable in the following

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, M5
- Configuration: LSASD, ULSASD, LSASDOP, LSADD, ULSADD (*check configuration limitations for each frame type in section 4.5.2.1*)

All leaf and frame types have been successfully tested with hinges and those listed in Appendix B are suitable.

Alternatively, the following hinge specification is acceptable providing the hinge has been tested to BS 476 Part 22 1987 or BS EN 1634 Part 1 in a solid timber door leaf, 44mm thick hung in a metal frame and the doorset has achieved 30 minutes integrity (and insulation if applicable).

Leaves less than 2400mm (h) must be hung on a minimum of 3 hinges. Leaves greater or equal 2400mm (h) must be hung on 4 hinges. Hinges with the following specification are acceptable.

Leaves less than 1200mm (h) can be hung on a minimum of 2 hinges located 150mm from the top and bottom of the door leaf (top hinge location is measured from the top of the hinge blade to the top of the door leaf and bottom hinge location is measured from the bottom of the hinge to the bottom of the door leaf).

Element		Specification	
Blade height:	90 - 120mm		
Blade width (excluding knuckle):	30 - 35mm		
Blade thickness	2.5 - 4mm		
Fixings:	Minimum of 4 No. 30mm long No. 8 or No.10 steel screws per blade		
Materials:	Steel or stainless steel		
Vo. Y	Тор	100 – 180mm from the head to top of hinge	
Hinge Position: If 3 hinges are required:	2 nd	Minimum 200mm from top hinge or centrally fitted between top and bottom hinge	
	Bottom	150 - 250mm from the foot of leaf to bottom of hinge	



		Тор	100 - 180mm from the head to top of hinge
	If 4 hinges are required:	2 nd & 3 rd	Equispaced between top and bottom or 2 nd hinge 200mm from top hinge and 3 rd hinge equally spaced between 2 nd and bottom hinge
		Bottom	150 - 250mm from the foot of leaf to bottom of hinge
Intumescent protection:		See section 8	

Alternatively a Certifire approved hinge, meeting the requirements of the above table and, which is approved for 30 minutes in an ITM doorset (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing the higher specification of hardware intumescent protection as required for the inclusion of the hinge within this Field of Application or the Certifire certificate are complied with. For example if the Certifire Certificate specifies intumescent protection behind the hinge blades and this Field of Application does not require intumescent protection behind the hinge blades, the fitting of the intumescent specified in the Certifire Certificate is required.

10.5 Automatic Closing

Automatic closing can be provided by

Overhead face fixed closer

Concealed closers, transom mounted closers, jamb mounted closers and floor springs are not permitted in this assessment.

10.5.1 Overhead Face Fixed Closer

These items are suitable in the following

Leaf: 1, 2 and 3

Frame: M1, M2, M3, M4, M5

Configurations LSASD, ULSASD, LSASD+OP, LSADD & ULSADD (check configuration limitations for each frame type in section 4.5.2.1)

All leaf and frame types have been successfully tested with overhead closers and those listed in Appendix B are suitable.

Alternatively a Certifire approved overhead face fixed closer which is approved for 30 minutes in an ITM doorset (i.e. a doorset incorporating Intumescent, Timber leaf and Metal frame), is acceptable providing all the requirements for the inclusion of the overhead face fixed closer required within this Field of Application and the Certifire certificate are complied with. For example if the Certifire certificate approves use, but places limitations on positioning, then these limitations must be followed.





10.6 Bolts

10.6.1 Surface mounted face fixed barrel bolts

Steel, stainless steel, aluminium or bronze surface mounted barrel bolts (of up 300mm long) may be surface fixed at the top and bottom of one leaf, at a minimum of 50mm from the meeting edge.

These items are suitable within the following scope:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, M5
- Configuration: All configurations
- Intumescent protection: none required

10.6.2 Flush Bolts

Flush bolts have been successfully tested in report CFR1905171. Flush bolts are suitable in the following when a latch is fitted:

- Leaf: 1 and 2
- Frame: M1, M3, & M4 (Frames must be backfilled) or M4 hollow frame design.
- Configurations LSADD (check configuration limitations for each frame type in section 4.5.2.1)
- Intumescent Protection: See section 8.1 and drawing below. Alternatively the hardware manufacturers tested gaskets may be used. Note: For steel frames, intumescent is not required behind the keep,
- 2No. Intumescent strips must be located in the leaf NOT containing the flush bolt.
- Flush bolts fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.

Flush bolts are suitable in the following when a lock is fitted:

• Leaf: 1 and 2

.01

- Frame: M1, M3, & M4 (Frames must be backfilled) or M4 hollow frame design.
- Configurations ULSADD (check configuration limitations for each frame type in section 4.5.2.1)
- Intumescent Protection: See section 8.1 and drawing below. Alternatively the hardware manufacturers tested gaskets may be used. Note: For steel frames, intumescent is not required behind the keep,
 - 2No.Intumescent strips must be located in the leaf NOT containing the flush bolt.
 - Flush bolts fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.

See section 10.1 for cement backfilled frame justification which indicates a reduction in likelihood of heat bridging to the door edges and further erosion and charring to the door leaf edge housing the flush bolt. It is the opinion of Warringtonfire that cement backfilled frames are permitted with the use of flush bolts.

Flush bolts tested and listed in Appendix B are suitable their requirements are given below.

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded based on test Chilt/RF15097.

• 610mm long x 20mm deep x 20mm wide.

Flush bolts must be steel and the mortice must be as tight to the mechanism as is compatible with its operation.







10.6.3 Royde & Tucker Anza surface mounted bolt

ANZ-220-BSS-FD (now with the product code ANZ-220-FD) has been successfully tested in CFR1009301-2 with the bolt activator in the face of the leaf, and with reference to the backfilled frame analysis and justification in section 10.1, is assessed as suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M3, & M4 (Frames must be backfilled)
- Door configuration: LSADD, ULSADD
- Intumescent protection:



- (a) 1mm thick interdens Fitted to all sides of the mortice in the leaf face, under the guide plate in the leaf head and under the bolt keep in the frame head. This is supplied with the bolts from Royde & Tucker.
- (b) Minimum of 1No graphite based seal of minimum size 20x4mm, fitted centrally in the leaf head.
- The rebate in the leaf face for the operating handle must not be closer than 190mm to the top or bottom of the leaf or closer than 40mm to the meeting edge of the leaf.
- The bolt fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.
- The longer length product variants ANZ-300-FD, ANZ-600-FD and ANZ-900-FD are also permitted as the bolt activator will be located further away from the top and bottom of the door leaf.





10.6.4 Royde & Tucker Anza flush mounted bolt

ANZ-220-BSS-FFD (now with the product code ANZ/R-220-FFD) has been successfully tested in CFR1009301-2 with the bolt activator in the meeting edge, and with reference to the backfilled frame analysis and justification in section 10.1, is assessed as suitable for use within the following scope:

- Leaf: 2
- Frame: M1, M3, & M4 (Frames must be backfilled).
- Door configuration: LSADD, ULSADD
- Intumescent protection:
 - (a) 1mm thick interdens Fitted to all sides of the mortice in the leaf edge, under the guide plate in the leaf head and under the bolt keep in the frame head. This is supplied with the bolts from Royde & Tucker
 - (b) Minimum of 1No graphite based seal of minimum size 20x4mm, fitted centrally in the leaf head.
- The rebate for the operating handle recessed into the leaf edge must not be closer than 170mm to the top or bottom of the leaf and must be positioned centrally in the leaf edge
- The bolt fitted at the bottom of the leaf cannot be used when a morticed in drop seal is present.
- The longer length product variants ANZ/R-300-FFD, ANZ/R-600-FFD and ANZ/R-900-FFD are also permitted as the bolt activator will be located further away from the top and bottom of the door leaf.





10.7 Non Essential Hardware

10.7.1 Roller Catches

These items are suitable in the following:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configuration: ULSASD¹

¹Roller catches may be used with this door design but only in conjunction with a self-closing device. Roller catches may only be fitted to single acting, single leaf doorsets (SASD) and with door dimensions that fall within that permitted for unlatched, single acting, single leaf doorsets (ULSASD).

The roller catch must be steel or brass with a melting point \geq 800 °C and must meet following dimension specification:

- Maximum forend and strike plate dimensions: 80mm high x 35mm wide x 4mm thick.
- Maximum body dimensions: 70mm high x 50mm wide x 20mm thick.
- Intumescent protection: None required
- Positioning must be no closer than 300mm from other meeting edge hardware and the top of the roller forend no closer than 150mm to leaf head.

Note DIN Standard Roller catches with integral locking function can be used up to forends of 235mm by 25mm with intumescent protection as detailed in Section 8.1 for lock/latches of this size.

10.7.2 Cable Loop & Cableways

The cable loops detailed in the following sections have been successfully tested with the Prima 30 door blank, and are therefore suitable for use within the scope stated herein.

See section 10.1 for cement backfilled frame justification which indicates a reduction in likelihood of heat bridging to the door edges and further erosion and charring to the door leaf edge.

On the basis of the tests cited in the following sections, which included Cable loops in doorsets, and following analysis of interruption of intumescent seals within the tested arrangements, it is the opinion of Warringtonfire that adding a steel cable loop to a steel cement backfilled frame type would have no significant effect on the doorsets fire resistance performance and therefore the cable loops listed below are permitted in this field of application report, when fitted with the minimum assessed intumescent seals for the scopes in the following sections.

10.7.2.1 Abloy EA280

This item has been successfully tested in test reference CFR2010021, with cable channels, and is assessed as suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement).
- Door configuration: LSASD, LSADD
- Intumescent protection:
 - (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
 - (b) Leaf hanging edge intumescent seal– A minimum of 30x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration)
- Cable loop must be fitted no higher than 1251mm from the bottom of the door jamb(s).
- Cable loop must not be within 100mm of hinge or other items of hardware along the frame jamb.

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10.7.2.2 Dorma KU 260

This item has been successfully tested in test reference CFR2004171 (Right-hand doorset), with cable routes, and is assessed as suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement).
- Door configuration: LSASD, LSADD
- Intumescent protection:
 - (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
 - (b) Leaf hanging edge intumescent seal A minimum of 38x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration).
- Cable loop must be fitted with the top of the face plate no more than 950mm above the bottom of the door jamb(s).
- Cable loop must not be within 100mm of hinge or other items of hardware along the frame jamb.

10.7.2.3 Gianni DL-500 & DL-417ST

These items have been successfully tested in test reference WF415117A, without a cable channel, and is suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement).
- Door configuration: LSASD
- Intumescent protection:
 - (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
 - (b) Leaf hanging edge intumescent seal A minimum of 30x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration)
- Cable loop must be fitted no higher than 1030mm from the bottom of the door jamb.
- Cable loop must not be within 200mm of hinge or other items of hardware along the frame jamb.

10.7.2.4 Bartels Systembeschlage Pivota DX "Connect"

This item has been successfully tested in test reference WF337470A, without a cable channel, and is suitable for use within the following scope:

- Leaf: 1 and 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement)
- Door configuration: ULSASD, LSASD, ULSADD, LSADD
- Intumescent protection:
 - (a) May be used with cableways which must be fitted and protected as detailed in section 10.7.2.5.
 - (b) Leaf hanging edge intumescent seal A minimum of 30x4mm intumescent must be used. (refer to section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration)
- Centre line of Cable loop forend must be fitted no more than 1375mm above the bottom of the door jamb.
- Cable loop must not be within 200mm of hinge or other items of hardware along the frame jamb.



10.7.2.5 Cableways

These items are suitable in the following 3 methods:

10.7.2.5.1 Cableway Method 1

- Leaf: 1 & 2
- Frame: M1, M2, M3 & M4 (Frames must be backfilled with cement)
- Configurations: LSASD
- Maximum leaf size: 2100mm (h) x 926mm (w)
- Intumescent specification(check section 4.5 for suitable intumescent seal for required Leaf, Frame and configuration):
 For Leaf 1: Minimum of 30x4mm intumescent must be used in the leaf edges
 - For Leaf 2. Minimum of 38x4mm intumescent must be used in the leaf edges
- Grooves cannot be located within 100mm of the cableway.
- May be used with the cable loops detailed in sections 10.7.2.1 to 10.7.2.4, which must be located, fitted and protected as described.

Based on the integrity performance of the doorset construction, with no burn through of the core material, we consider it acceptable to allow the provision for a concealed cableway to facilitate electro-magnetic closing/latching mechanisms. The cableway must be concealed in the following way:

- A hole drilled centrally through the leaf of maximum 10mm diameter
- The cable for the electronic closing/latching mechanisms must be no more than 2mm smaller in diameter than the hole through the leaf unless wrapped in 1mm intumescent.
- The cable for the electronic closing/latching mechanism must be PVC encased
- The hole must be located below 1500mm from the threshold and must be spaced a minimum of 90mm from any apertures within the leaf e.g. glazing, air transfer grilles or letter plates etc.

10.7.2.5.2 Cableway Method 2

Based on test evidence CFR2004171 (Right-hand doorset), using Leaf 2, and CFR2010021 (Right-hand doorset), using Leaf 1, with associated hardware and is suitable for use within the following scope:

- Leaf: 1 & 2
- Frame: M1, M2, M3, & M4 (Frames must be backfilled with cement)
- Configurations: LSASD, ULSASD, LSADD, ULSADD
- Maximum Leaf Size: 2440mm (h) x 926mm (w) or as limited by other hardware or the relevant configuration
- Intumescent specification:
 - For Leaf 1: Minimum of 30x4mm intumescent must be used in the leaf edges For Leaf 2. Minimum of 38x4mm intumescent must be used in the leaf edges
 - The leaf can be grooved
 - For Leaf 1, grooves cannot be located within 100mm of the cableway.
- May be used with the cable loops detailed in sections 10.7.2.1 to 10.7.2.4, which must be located, fitted as described.
- Cableway must be no higher than 1500mm from the bottom of the leaf to centre of channel.
- Cableway must be spaced a minimum of 90mm from any apertures within the leaf e.g. glazing, air transfer grilles or letter plates etc.

This method comprises a 10mm high x 10mm wide horizontal channel through the full width of the leaf, central to the leaf edge and is concealed in the following way:



- Groove the face of the door core with a 10mm wide channel to a depth of 5mm below the centre of the door core (i.e. 27mm deep for 44mm cores and 32mm deep for 54mm cores)
- Groove the same face with a second groove 30mm wide x 17mm deep for 44mm cores or 23mm deep for 54mm cores, located centrally over the first groove
- Fit a plug in to the second groove 30mm wide by 17mm/23mm deep using Prima core. The plug should run the full length of the cableway and be bonded into place using PVA or PU adhesive
- The door core can then be lipped and calibrated in the usual manner
- Mortice out the for the lock and drill a 10mm hole through the lipping on the opposite edge
- When installing the cable, it must be protected with 1mm STS CablePro intumescent wrap



thickness

10.7.2.5.3 Cableway Method 3

This item has been successfully tested in test reference CFR2004171 (Right-hand doorset), using Leaf 2, and CFR2010021 (Right-hand doorset), using Leaf 1, with associated hardware and is suitable for use within the following scope:

Leaf: Leaf 1 & 2

Frame M1, M2, M3, & M4 (Frames must be backfilled with cement)

- Configurations: LSASD, ULSASD, LSADD, ULSADD
- Maximum Leaf Size: 2440mm (h) x 926mm (w) or as limited by other hardware or the relevant configuration
- Intumescent specification: For Leaf 1: Minimum of 30x4mm intumescent must be used in the leaf edges For Leaf 2. Minimum of 38x4mm intumescent must be used in the leaf edges
- The leaf can be grooved For Leaf 1, grooves cannot be located within 100mm of the cableway.



- May be used with the cable loops detailed in sections 10.7.2.1 to 10.7.2.4, which must be located, fitted as described.
- Cableway must be no higher than 1500mm from the bottom of the leaf to centre of channel.
- Cableway must be spaced a minimum of 90mm from any apertures within the leaf e.g. glazing, air transfer grilles or letter plates etc.

This method comprises a 10mm high x 10mm wide channel central to the leaf edge, running down from the hanging edge to the bottom edge of leaf, along the bottom edge to the closing edge/meeting edge, and up along the closing edge/ meeting edge to the latch/lock location, and concealed in the following way:

- Groove the edge of the door core with a 10mm wide channel located centrally, to a depth of 39mm. This groove should run from the lock/keep location in the closing/meeting edge, down the edge, along the bottom of the door then back up the hanging edge to the cable loop location.
- Install the cable, protected with 1mm STS CablePro intumescent wrap, into the groove.
- Infill the groove with 29mm x 10mm Sapele (minimum density 640 kg/m³), bonded in place with PU adhesive.
- The door core can then be lipped and calibrated in the usual manner.





10.7.3 Handles

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10.7.3.1 Lever Handles

Lever type handles have been successfully tested with the Prima 30 door blank, and subject to meeting the specification below they are suitable for use within the following scope:

- Leaf: 1. 2 and 3
- Frames: M1, M2, M3, M4, M5 .
- Configuration: All configurations .
- Intumescent protection: none required

Lever handles are permitted providing they meet the specification given below:

- Steel, stainless steel, brass, aluminium or bronze are permitted
- Surface fixings or through fixings are permitted. If through fixed there must be no more than 0.5mm clearance between the hole and the fixing.
- The hole through the leaf to facilitate the spindle must be no greater than 20mm diameter.
- The design may be either lever on rose or lever on back plate up to the following maximum sizes:

 - Lever on rose with a rose diameter up to 54mm
 Lever on back plate with a back plate size up to 243mm high x 56mm wide Lever on back place
 Lever handle length 250mm.

The handle must be compatible with the lock/latch, such that the closing action of the doorset is not impeded.





10.7.3.2 Pull Handles

Steel, stainless steel, aluminium, brass or bronze handles may be surface-fixed or bolted through the door leaf, providing the length is limited to 1200 mm between the fixing points. If through fixed, there must be no more than 1mm clearance between the hole and stud.

These items are suitable in the following

- Leaf: 1, 2 and 3.
- Frame: M1, M2, M3, M4, & M5
- Configurations ULSASD, LSASD, LSASD+OP, ULSADD & LSADD.
- Intumescent protection: none required

A Zoo Hardware Ltd ZAAD600BSA aluminium D pull handle measuring $Ø19mm \times 618mm$ high x 65mm deep was successfully tested in test report CFR1912921 installed on the fire side of the door leaf using 2No. M8 x 60 countersunk steel through fixings. This pull handle design is therefore permitted in this field of application report installed onto leaf 2 (54mm thick). Alternative, aluminium pull handles of the same size or smaller, surface-fixed or bolted through, if no additional material is taken out of the door leaf than successfully tested, are permitted with leaf 2.

A Zoo Hardware ZCA030SA aluminium lever handle measuring 52mm high x 147mm wide x 19mm thick x 64mm projection was successfully tested in report WF412658. This lever handle design is therefore permitted in this field of application report installed onto leaf 2 (54mm thick). Alternative, surface mounted aluminium lever handles of the same size or smaller are permitted with leaf 2.



10.7.3.3 Recessed Pull Handles

Hoppe AR3903-BB-PULL-SSS recessed pull handle/push plate

This item has been successfully tested in test reference WF193473A, and is suitable for use within the following scope:

- Leaf: 2 only
- Frame: M1, M2, M3, M4, & M5
- Door configuration: All configurations
- Intumescent protection:
 - (a) 1mm thick interdens fitted beneath the recessed part of the pull handle
- The recessed pull handle/push plate must be located between 500mm and 1200mm above the threshold and no closer than 50mm to a door edge and no closer than 100mm to glazing, cableways or any hardware.
- The fixing plate must be surface mounted onto the face of the door leaf. This plate must not be recessed into the door leaf face.
- This item may be used in conjunction with a face fixed (not recessed) push plate in a "back-to-back" arrangement with the recessed pull handle to one face and the push plate to the other face of the leaf, through fixed and with a recess for the pull handle as tested and shown in the following drawing:



10.7.4 Push Plates & Kick Plates

Steel, stainless steel, brass or aluminium face-fixed hardware such as push plates and kick plates may be fitted to the doorsets and may be recessed to a maximum depth of 2mm on both sides of the door leaf. These items of hardware are permitted up to a maximum of 20% of the door leaf area if mechanically fixed and a maximum of 30% if bonded with a contact or other thermally softening adhesive. Plates must not return around the door edges.

When fitted recessed the plate may not be closer than 14mm to any leaf edge and may not be fitted below stops.

These items have been successfully tested in test reference Chilt/RF10111 and are suitable for use within the following scope:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5.
- Configurations ULSASD, LSASD, LSASD+OP, ULSADD & LSADD.
- Intumescent protection: none required



10.7.5 Panic Hardware

Panic hardware may be fitted, providing the installation does not require the removal of any timber from the leaf or any metal from the stop or frame reveal and it does not interfere with the self-closing action of the door leaf.

These items are suitable for use within the following scope:

- Leaf: 1, 2 and 3
- Frame: M1, M2, M3, M4, & M5
- Configuration: LSASD, LSADD
- Intumescent protection: none required

10.7.6 Security Viewers

Door security viewers with brass or steel bodies of a diameter less than or equal to 15mm may be used provided that the through-hole is bored tight to the case of the viewer (maximum tolerance +1 mm). Lenses must be glass and the item must be protected with a tested acrylic intumescent mastic or 1mm graphite sheet.

Fitted no closer than 75mm to door edge, glazing or any hardware.

Two door security viewers may be fitted to one door leaf if necessary and must be positioned a minimum of 75mm apart.

These items have been successfully tested in test reference Chilt/RF03076, and are suitable for use within the following scope:

- Leaf: 1, 2 and 3.
- Frame: M1, M2, M3, M4, & M5
- Configurations ULSASD, LSASD, LSASD+OP, ULSADD & LSADD.
- Intumescent protection: 1mm graphite sheet or as tested.

See Appendix B7 for tested security (eye) viewers and intumescent protection.

10.7.7 Environmental Seals

The tested seals are permitted in this assessment restricted to the frame it was tested with as specified in the table below:

Environmental Seal			
Test Report	Frame	Product	Manufacturer
CFR1905171	M4	AC5709	Rema
CFR1912021	M4	AADC0006	BOS
Warres 118289	M5	P256 *	Nelso

* The Nelso P256 PVC seal has been confirmed to be a rebranding of the Nelso GDF4 seal successfully tested in report Warres 118289 and is therefore permitted in this field of application report to the requirements given in the table above.

Whilst the above seals may be installed, it is beyond the remit of this Field of Application report to provide scope for acoustic or cold smoke control performance.



