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Title

Field of Application for:

The Warm Springs Composite Products Range of Doorsets

For 60, 90 and 120 minutes Fire Resistance

Report No.:

Chilt/A12138 Revision B

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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.

10 Hardware

10.1 General

The following section details the permitted scope and constraints for fitting hardware to the WSCP doorset design. The following items of hardware must bear the CE / UKCA Mark:

- Latches & locks: Test Standard EN 12209
- Single axis hinges: Test Standard EN 1935
- Controlled door closing devices: Test Standard EN 1154
- Emergency exit hardware: Test Standard EN 179
- Panic exit hardware: Test Standard EN 1125.

The following sections consider what tested and assessed alternative items of essential and non-essential hardware can be used on the doorset range.

Items of hardware have been considered and approved via the following means:

- The component has been successfully tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a suitably similar type of doorset e.g. timber leaf in timber frame for the same required duration (i.e. 60, 90 or 120 minutes depending on the application of the doorset)
- As a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Falcon Panel Products Ltd.
- As a result of the CERTIFIRE approval of the item of hardware for the required duration of fire resistance which is suitable for a leaf with the same thickness or greater as the leaf detailed herein.

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 configuration requirements

No item of hardware should be within 200mm of another item of hardware unless there is test evidence to demonstrated they can be in closer proximity.

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 Intumescent to Hardware

The intumescent materials used to protect hardware that have been tested and assessed for this doorset design are detailed below. Note that any one of the product/manufacturer options listed in the table may be used in the specific application noted.

The door gap perimeter intumescent seal specifications are documented in conjunction with the leaf envelope size limitations in section 4.

The below table details the minimum intumescent protection required for each element of building hardware. For the purpose of this assessment, it has been necessary to establish a minimum base line on performance of the doorset to the highest classification, therefore hardware protection requirements for 120 minutes are to also be applied at 60 and 90 minutes fire resistance.

Hardware Intumescent Specification		
Item	**Location**	**Product/Manufacturer**
Hinges	Frame options 1, 2 & 3: Located under each blade of the hinge.	• 2mm thick WSCP Strip-seal, ammonium phosphate based (CFR1410311)
Lock/latches	Under forend & keep (and at base of latch and lock rebates in frame) for all doorsets	• 2mm thick WSCP Flex-seal raw graphite type (CFR1410311)
	Encasing latch body	Not required
Concealed overhead closers	Encasing the entire body of the concealed closer and slide arm including the back surface of the face plate	2mm thick interdens (RF12178 A & B)
Flush bolts	Lining the body of the flush bolt including the back surface of the face plate as tested CFR1410311	1mm thick WSCP Flex-seal raw graphite type (1No 53 x 19 x 1mm and 2No 55 x 6 x 1mm)

Example of hinge protection detail

10.3 Essential Hardware

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

Configuration	Hardware
LSASD	• Latch • Handle • Hinges • Self-closing device (closer)
ULSASD	• Hinges • Self-closing device (closer)
LSADD	• Latch • Handle • Hinges • Self-closing device (closer) • Flush bolt or Face fixed Barrel Bolt
ULSADD	• Hinges • Self-closing device (closer)

10.4 Latches & Locks

10.4.1 Single Point Engagement

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested latches and locks that are approved.

Element	Manufacturer & Product Reference
Locks & latches	1. Zoo ZDL CE1121 (CFR1410311) 2. Dale 97170 Tubular mortise latch (CFR1103111) 3. Arrone AR910 (RF12178) 4. Altro 684791 heavy duty tubular latch (WF504475)

Alternatively, the components with the following specification are also deemed acceptable.

Single leaf doorsets

Element	Specification
Maximum forend and strike plate dimensions	235mm high x 24mm wide x 3mm thick
Maximum body dimensions	165mm high x 92mm wide x 15mm thick
Intumescent protection	see section 10.2
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 ≥ 800^0 C

Double leaf doorsets

Element	Specification
Maximum forend and strike plate dimensions	235mm high by 22mm wide by 3mm thick
Maximum body dimensions	165mm high by 87mm wide by 15mm thick
Intumescent protection	see section 10.2
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 ≥ 800^0 C

Notes:

1. In all instances the location of the handle must be between 1000 – 1200mm from the threshold.

10.5 Handles

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested handles that are approved.

Element	Manufacturer & Product Reference
Handles	• Turentek Architetureal Ironmongers Ovation OV 75.001 (CFR1410311) • Dale SA sandal DH005706 (CFR1103111) • Arrone AR361/10 (RF12178) • RL-RTD-121-SS Aluminium lever handle (WF504475)

Alternative 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 handle on rose or handle 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 handle length 250mm

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

Alternative escutcheons 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 escutcheon may be up to Ø52mm overall and up to 8mm thick.

10.6 Butt Hinges

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested butt hinges that are approved.

Element	Manufacturer & Product Reference
Hinges	• Union JH603BU (CFR1410311) • Arrone AR8680 (RF12178) • Royde & Tucker Hi load H105 lift-off type (CFR1103111) • Royde & Tucker Hi load H101 (WF504475) • Cooke Brothers 7740 (CFR1504141)

Alternatively, the components with the following specification are also deemed acceptable.

Element	Specification
Blade height:	90 - 105mm
Blade width (excluding knuckle):	30 - 35mm
Blade thickness	2.5 - 4mm
Fixings:	Minimum of 4 No. 30mm long No. 8 or No.10 steel wood screws per blade
Materials:	Steel or stainless steel

In all instances, the hinges must have the following specification.

Element		Specification	
Hinge positions:	Leaf height < 2135mm high, 3 hinges are required:	Top	150 –180mm from the head to top of hinge
		2nd	Minimum 200mm from top hinge or centrally fitted between top and bottom hinge
		Bottom	180 - 250mm from the foot of leaf to bottom of hinge
	2135mm ≥Leaf height < 2700mm high, 4 hinges are required:	Top	150-180mm from the head to top of hinge
		2nd & 3rd	Equispaced between top and bottom or 2nd hinge 200mm from top hinge and 3rd hinge equally spaced between 2nd and bottom hinge
		Bottom	180 - 250mm from the foot of leaf to bottom of hinge
	Leaf height ≥ 2135mm high, 5 hinges are required:	Top	150-180mm from the head to top of hinge
		2nd & 3rd & 4th	Equispaced between top and bottom hinges
		Bottom	180 - 250mm from the foot of leaf to bottom of hinge
Intumescent protection:		See section 10.2	

Note:

Leaves less than 2135mm (h) must be hung on a minimum of 3 hinges. Leaves greater or equal 2135mm (h) and less than 2700mm high must be hung on 4 hinges. Leaves greater or equal 2700mm (h) must be hung on 5 hinges. It is permitted to increase the number of hinges on doorsets which are smaller than the heights specifically detailed above up to a maximum of 5No. hinges applied to any one door leaf.

10.7 Doorset Self Closing

Doorset automatic self-closing can be provided by:

- Overhead face fixed closers
- Concealed overhead closers

Automatic doorset self-closing devices such as transom mounted, and offset pivots used with floor springs are not considered acceptable for use with the WSCP doorset range.

10.7.1 Overhead Face Fixed Closer

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested overhead face-fixed closers that are approved.

Element	Manufacturer & Product Reference
Overhead face-fixed closers	• Briton 2003SES (CFR1009081 Revision 2) • Dorma TS72 (CFR14103111) • Dorma TS86 (CFR1103111) • Rutland TS11205 (WF504475)

Alternatively, the components with the following specification are also deemed acceptable.

- CERTIFIRE approved overhead face-fixed closers for 60, 90 or 120-minute fire resistance applications (as appropriate) on intumescent sealed door assemblies consisting of timber faced and edged leaves with timber, cellulosic or mineral cores in timber frames (code ITT).

Note:

It must be ensured that the closer is of sufficient strength and power to ensure the door leaf/leaves fully engage into the frame reveal

10.7.2 Concealed Overhead Self Closing Device

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested concealed overhead closers that are approved.

Element	Manufacturer & Product Reference
Concealed overhead closer	• Arrone AR7383 (RF12178)

Alternative concealed overhead self closing devices are not permitted.

Note:

1. It must be ensured that the concealed overhead closer is of sufficient strength and power to ensure the door leaf/leaves fully engage into the frame reveal
2. For intumescent protection requirements, see section 10.2.

10.8 Flush Bolts

These items are suitable in the following applications only:

Frame options: Frame 1 Only

The table below details the tested flush bolts that are approved.

Element	Manufacturer & Product Reference
Overhead face-fixed closers	• Zoo ZAS03SS (CFR14103111)

Alternative flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions for the mortice are not exceeded and do not interrupt the intumescent any more than tested:

- 204mm 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. All edges of the mortice of the keep and body must be protected with intumescent gaskets as specified in section 10.2.

10.9 Face fixed Barrel Bolts

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

The table below details the tested face fixed bolts that are approved.

Element	Manufacturer & Product Reference
Face fixed barrel bolt	• Necked barrel bolt (code 5528), 76 x 25 (back plate) (CFR1009081)

Steel, stainless steel or bronze barrel bolts up to 100mm x 30mm back plate size, may be surface-fixed to the top and bottom of the slave door leaf.

10.10 Non-Essential Hardware

10.10.1 Pull Handles

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

Steel, stainless steel or bronze handles may be surface-fixed or bolted through the door leaf, providing the length is limited to 1200mm between the fixing points. If through fixed, 1mm thick interdens must be wrapped around the full length of the stud and the hole through the leaf tight to the stud.

10.10.2 Push Plates & Kick Plates

Frame options: Frames 1, 2 & 3

Components with the following specification are deemed acceptable.

- Steel or stainless-steel face-fixed hardware such as push plates and kick plates may be surface fitted to the doorset. 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 or 'notch out'/interrupt the door stop.

10.10.3 Panic Hardware

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

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

10.10.4 Air Transfer Grilles

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

Air transfer grilles must be CERTIFIRE approved for 60, 90 or 120 minutes on intumescent sealed door assemblies consisting of timber faced and edged leaves with timber, cellulosic or mineral cores in timber frames (code ITT), in a leaf of comparable thickness, for the intended fire resistance period. Restriction relating to size, location and intumescent protection around the air transfer grille must be complied with.

Additonally margins to the leaf edges will remain as detailed for glazing (see section 6) and the position of the unit will be dictated by the pressure regime tested in the proving evidence (normally below mid height).

The area occupied by the air transfer grille must not exceed 0.18m^2 and must be deducted from the area of glazing, if both elements are fitted.

If it is required to fit air transfer grilles outside the aforementioned scope, guidance and appropriate test evidence must be sought from the manufacturer of the grille, including permitted numbers of grilles, spacing within the door leaf, additional intumescents, aperture liners and location within the doorset (with respect to pressure regime).

All apertures created for air transfer grilles must be lined with a tectonite aperture liner of 43 to 51mm (w) x 51mm (t), adhered to the core prior to the fitting of the leaf facings, using the same adhesives as permitted for stiles and rails.

10.10.5 Environmental Seals

The use of environmental seals is not permitted with the WSCP doorset design.

10.10.6 Threshold drop Seals

Threshold drop seals are not permitted with the WSCP doorset design.

10.10.7 Numerals & Signage

These items are suitable in the following applications only:

Frame options: Frames 1, 2 & 3

Components with the following specification are deemed acceptable.

Steel, stainless steel, aluminium or plastic numerals or fire safety signage may be glued or screwed to the face of the door leaves, providing they are fitted no closer than 75mm from the leaf edge or to any glazing and are no greater than 300mm high x 100mm wide.